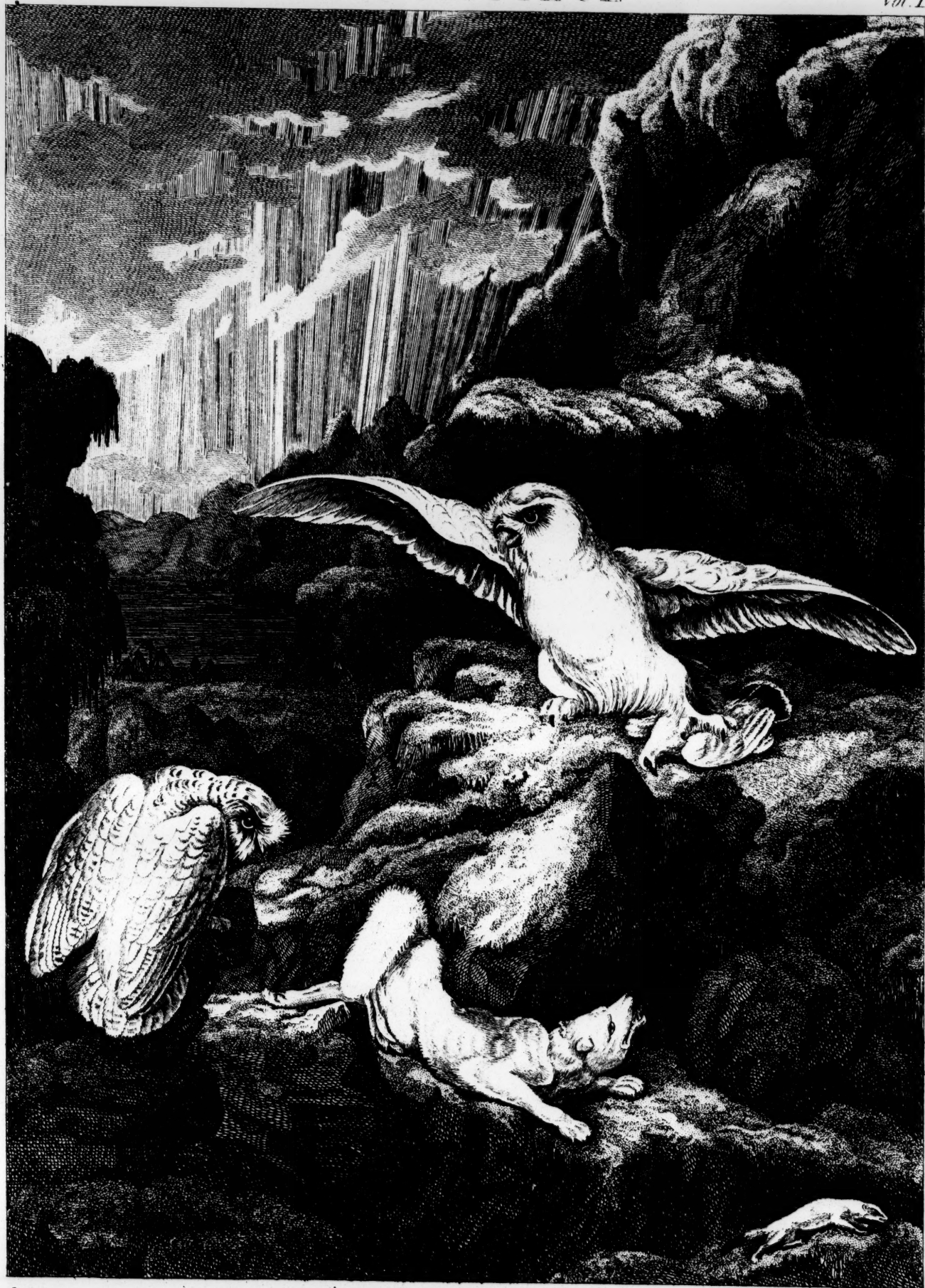


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Vol. I.



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ARCTIC ZOOLOGY.

V O L. I.

I N T R O D U C T I O N.

CLASS I. QUADRUPEDS.



L O N D O N:

PRINTED BY HENRY HUGHS.

M.DCC.LXXXIV.

ARCTIC EXPEDITION

VOLUME I

1858-1859

BY J. A. COOPER



ADVERTISEMENT.

THIS Work was begun a great number of years past, when the empire of *Great Britain* was entire, and possessed the northern part of the New World with envied splendor. At that period I formed a design of collecting materials for a partial History of its Animals; and with true pains, by various correspondencies, made far greater progress in my plan than my most sanguine expectations had framed. Above a century ago, an illustrious predecessor in the line of Natural History, who as greatly exceeded me in abilities as he did in zeal, meditated a voyage to the New World, in pursuance of a similar design. The gentleman alluded to was FRANCIS WILLUGHBY, Esq; who died in 1672, on the point of putting his design in execution. Emulous of so illustrious an example, I took up the object of his pursuit; but my many relative duties forbade me from carrying it to the length conceived by that great and good man. What he would have performed, from an actual inspection in the native country of the several subjects under consideration, I must content myself to do, in a less perfect manner, from preserved specimens transmitted to me; and offer to the world their Natural History, taken from gentlemen or writers who have paid no small attention to their manners.

Let me repeat, that this Work was designed as a sketch of the Zoology of *North America*. I thought I had a right to
A the

A D V E R T I S E M E N T.

the attempt, at a time I had the honor of calling myself a fellow-subject with that respectable part of our former great empire; but when the fatal and humiliating hour arrived, which deprived *Britain* of power, strength, and glory, I felt the mortification which must strike every feeling individual at losing his little share in the boast of ruling over half of the New World. I could no longer support my claim of entitling myself its humble Zoologist: yet, unwilling to fling away all my labors, do now deliver them to the Public under the title of the ARCTIC ZOOLOGY. I added to them a description of the Quadrupeds and Birds of the north of *Europe* and of *Asia*, from latitude 60 to the farthest known parts of the *Arctic* World, together with those of *Kamtchatka*, and the parts of *America* visited in the last voyage of the illustrious Cook. These additional parts I have flung into the form of an Appendix to each genus, and distinguished by a *fleur de lis*; and the species by literal instead of numeral marks, which distinguish those of *North America*. These will, in a great measure, shew the dilatation of Quadrupeds and Birds, and the migrations of the feathered tribe, within part of the northern hemisphere.

I have, whenever I could get information, given their respective residences, as well as migrations to far more northern parts, to shew to what very remote places the Author of Nature hath impelled them to retire, to breed in security. This wise provision preserves the species entire, and enables them to return by myriads, to contribute to the food or luxuries of southern climates. Whatever is wanting in the *American* part, I may foresee, will in time be amply supplied. The powers of literature will soon arise, with the other strengths of the new empire, and some native Naturalist give perfection to that

A D V E R T I S E M E N T.

part of the undertaking, by observations formed on the spot, in the uses, manners, and migrations. Should, at present, no one be inclined to take the pen out of my hand, remarks from the other side of the *Atlantic*, from any gentlemen of congenial studies, will add peculiar pleasure to a favorite pursuit, and be gratefully received.

I must reckon among my most valued correspondents on the New Continent, Doctor ALEXANDER GARDEN*, who, by his long residence in *South Carolina*, was enabled to communicate to me variety of curious remarks and subjects, as will appear in the following pages.

To the rich museum of *American Birds*, preserved by Mrs. ANNA BLACKBURN, of *Orford*, near *Warrington*, I am indebted for the opportunity of describing almost every one known in the provinces of *Jersey*, *New York*, and *Connecticut*. They were sent over to that Lady by her brother, the late Mr. *Ashton Blackburn*; who added to the skill and zeal of a sportsman, the most pertinent remarks on the specimens he collected for his worthy and philosophical sister.

In the foremost rank of the philosophers of the Old Continent, from whose correspondence I have benefited, I must place Doctor PETER SIM. PALLAS, at present Professor of Natural History in the service of the illustrious EMPRESS of *Russia*: he not only favored me with the fullest remarks on the Zoological part of that vast empire, most of which he formed from actual travel and observation, but collected for my use various other remarks from the manuscripts of his predecessors; especially what related to *Kamtshatka* from those

* Now resident in *London*.

A D V E R T I S E M E N T.

of STELLER; which have assisted me in the history of parts hitherto but very slightly understood.

From the correspondency and labors of Mr. EBERH. AUG. WILLIAM ZIMMERMAN, Professor of Mathematics at *Brunswick*, I have collected most uncommon instruction. His *Specimen Zoologiae Geographicae Quadrupedum** is a work which gives a full view of the class of Quadrupeds, and the progress they have made in spreading over the face of the earth, according to climates and latitudes. Their limits are described, in general, with uncommon accuracy. Much is said of the climates themselves; of the varieties of mankind; of the effects of heat and cold on them and other animals. A most curious map is joined to the work, in which is given the name of every animal in its proper climate; so that a view of the whole Quadruped creation is placed before one's eyes, in a manner perfectly new and instructive†.

To the following foreigners, distinguished for their literary knowledge, I must pay my best acknowledgement for variety of most useful communications: DOCTOR ANDERS SPARMAN, of *Stockholm*; DOCTOR CHARLES P. THUNBERG, of *Upsal*; Mr. AND. J. RETZIUS, Professor of Natural History at *Lund*; Mr. MARTIN THRANE BRUNNICH, Professor of Natural History, and Mr. OTHO MULLER, Author of the *Zoologia Danica*, both of *Copenhagen*: and let me add my great obligations to the labors of the Reverend Mr. OTTO FABRICIUS, for his most finished *Fauna of Greenland*.

* A quarto in *Latin*, containing 685 pages, printed at *Leyden*, 1777; sold in *London* by Mr. Faden, Geographer, *St. Martin's Lane*.

† A new edition of the map has been lately published by the learned Author; the geographical part is corrected according to the late voyages of Captain Cook, and great additions made to the zoological part. An explanation is given, in the third volume of the *Zoologia Geographica*, lately published in *German* by the Author.

To

A D V E R T I S E M E N T.

To many of my countrymen my best thanks are due for literary assistances. Sir JOSEPH BANKS, Baronet, will, I hope, accept my thanks for the free admittance to those parts of his cabinet which more immediately related to the subject of the following sheets.

To Sir ASHTON LEVER, Knight, I am highly indebted, for the more intimate and closer examination of his treasures than was allowed to the common visitors of his most magnificent museum.

To Mr. SAMUEL HEARN, the great explorer by land of the *Icy Sea*, I cannot but send my most particular thanks, for his liberal communication of many zoological remarks, made by him on the bold and fatiguing adventure he undertook from *Hudson's Bay* to the *ne plus ultra* of the north on that side.

Mr. ANDREW GRAHAM, long a resident in *Hudson's Bay*, obliged me with numbers of observations on the country, and the use of multitudes of specimens of animals transmitted by him to the late museum of the Royal Society, at the instance of that liberal patron of science, my respected friend the Honorable DAINES BARRINGTON.

Let me close the list with acknowledging the great assistance I have found in the Synopsis of Birds by Mr. JOHN LATHAM; a work now brought almost to a conclusion, and which contains a far greater number of descriptions than any which has gone before. This is owing not only to the assiduity of the Author, but also to the peculiar spirit of the *English* nation, which has, in its voyages to the most remote and most opposite parts of the globe, paid attention to every branch of science. The advantages are pointed out by the able pen of the Reverend Doctor DOUGLAS, in his Introduction to the last Voyage of
our

A D V E R T I S E M E N T.

our great navigator, published (under the auspices of the Lords of the Admiralty) in a manner which reflects honor on our country in general, and will prove a most lasting monument to the memory of the great Officer who so unfortunately perished by savage hands, and his two able consorts, who at length sunk beneath the pressure of fatigue, in carrying the glory of discovery far beyond the attempts of every preceding adventurer,

Downing,
February 1, 1785.

THOMAS PENNANT.

PLATES.

P L A T E S.

V O L. I.

F RONTISPIECE, a winter scene in *Lapland*, with *Aurora Borealis*: the *Arctic* Fox, N° 10: Ermine, N° 26: Snowy Owl, N° 121: and White Grouse, N° 183.

Title-page, with the head of the Elk, N° 3, before it was arrived at full age.

Tab. I.	The caves of <i>Causse</i> in <i>Murray</i> ,	—	Intro.	page xviii
II.	Rocks of singular forms near <i>Sandside</i> ,	—	—	xx
III.	The <i>Doreholm</i> , a small isle, one of the <i>Schetlands</i> , perforated with a vast arch	—	—	xxvii
IV.	Bird-catching in one of the <i>Orkney</i> isles	—	—	xxx
V.	Antiquities	—	—	xxxiii

N° I. A Burgh of the smallest kind, with a single cell.

II. The Burgh of *Culswick* in *Schetland*, and a section of the wall.

III. The Burgh of *Burrowsfirth* on *Helingsa Voe*, a holme or small isle among the *Schetlands*. It contains eleven cells.

IV. Burgh of *Snaburgh* in *Unst*, one of the *Schetlands*.

V. Burgh of *Hogfeter*.

VI. *Roman* camp in *Feltber*.

For the drawings from which these Antiquities were engraven, I am indebted to the Reverend Mr. *Low*, Minister of *Birsa* in *Orkney*, who, at my request, made the voyage of the *Orkney* and *Schetland* isles in 1778. He hath prepared his journal for the press: it is to be hoped, that the liberality of the public will enable him to give this addition to my labors, which will complete the account of the northern part of the *British* dominions.

Tab. VI.	The Bow described p. cxliv. The place it came from is uncertain; but doubtless from the part of the western coast of <i>America</i> frequented by the Walrus	—	—	—	page cxliv
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Tab. VII.

P L A T E S.

Tab. VII. The Musk Cow, with the head of the Bull. See the	
Zoological part — — —	page 8
VIII. A full-grown male Elk or Moøse, with the velvet, or	
young horns; and a full-grown pair on the ground.	
From a painting by Mr. <i>Stubbs</i> , communicated to	
me by the late Dr. <i>Hunter</i> — —	17

V O L. II.

Title-page, the Pied Duck, N° 488.	
IX. <i>St. John's</i> Falcon : Chocolate-colored Falcon —	200
X. Swallow-tailed Falcon — — —	210
XI. Red Owl, N° 117 ; Mottled Owl, N° 118 : Barred	
Owl, N° 122 — — —	234
XII. Male and Female <i>Baltimore</i> Orioles, N° 142 ; with	
the nest — — —	258
XIII. Ferruginous Woodpecker, N° 159 : Nuthatch, N° 170	271
XIV. Passenger Pigeon, N° 187 : <i>Carolina</i> Pigeon, N° 188	326
XV. Varied Thrush, N° 197 — — —	337
XVI. Spotted Grosbeak, N° 213 : White-crowned Bunt-	
ing, N° 221 — — —	355
XVII. Black-throated Bunting, N° 228 : Cinereous Bunt-	
ing, N° 333 — — —	364
XVIII. Aculeated Swallow, N° 335 : Long-winged Goat-	
fucker, N° 337 — — —	436
XIX. <i>Eskimaux</i> Curlew, N° 364 : Little Woodcock, N° 365	463
XX. Clapper Rail, N° 407 : Semipalmated Snipe, N° 380	490
XXI. <i>American</i> Avofet, N° 421 — — —	502
XXII. Pied-billed Grebe, N° 418 : Marbled Guillemot,	
N° 438 — — —	517
XXIII. Falcated Duck, p. 574 : Western Duck, N° 497 —	574

The Bookbinder is desired to observe, that the Second Volume begins
at p. 187, CLASS II. BIRDS.

INTRODUCTION.

OF THE

ARCTIC WORLD.

A KNOWLEDGE of the geography, climate, and soil, and a general view of the productions of the countries, whose Zoologic History is to be treated of, are points so necessary, that no apology need be made for introducing them into a prefatory discourse.

It is worthy human curiosity to trace the gradual increase of the animal world, from the scanty pittance given to the rocks of *Spitzbergen*, to the swarms of beings which enliven the vegetating plains of *Senegal*: to point out the causes of the local niggardness of certain places, and the prodigious plenty in others. The Botanist should attend the fancied voyage I am about to take, to explain the scanty herbage of the *Arctic* regions; or, should I at any time hereafter descend into the lower latitudes, to investigate the luxuriancy of plants in the warmer climates.

The Fossilist should join company, and point the variations of primæval creation, from the solid rock of *Spitzbergen* through all the degrees of terrestrial matter: the steps it makes to perfection, from the vilest earth to the precious diamond of *Golconda*. The changes in the face of the globe should be attended to; the destructions by volcanoes; the ravages of the sea on some coasts, and the recompence it may have made to others, by the retreat of its waters.

The pursuit of these enquiries will also have a farther and more important object. History should be called in, and a brief account given of the population of the more remote countries—the motives which induced mankind to seek retreats in climates seemingly destitute of incitements to migration. Particular attention should be paid to the means of peopling the new world, and of stocking it with animals, to contribute to the support of mankind, after the first colonization—the increase of those animals, and their cessation, and giving place in a certain latitude to genera entirely different.

Here

Here the fine study of Geography should step in to our assistance. The outline of the terrestrial globe should be traced; the several approximations between part and part should be attended to; the nature of the oceans observed; the various islands pointed out, as the steps, the baiting-places where mankind might have rested in its passage from an overcharged continent.

The manners of the people ought not less to be attended to; and their changes, both mental and corporeal, by comparison of the present state of remote people with nations with whom they had common ancestors, and who may have been discovered still to retain their primæval seats. Some leading customs may still have been preserved in both; or some monuments of antiquity, proofs of congenial habitudes, possibly no longer extant in the savage than in the cultivated branches of the common stock.

STREIGHTS OF
DOVER.

Let me take my departure northward, from the narrow streights of *Dover*, the site of the isthmus of the once peninsulated *Britain*. No certain cause can be given for the mighty convulsion which tore us from the continent: whether it was rent by an earthquake, or whether it was worn through by the continual dashing of the waters, no *Pythagoras* is left to solve the *Fortuna locorum*:

Vidi ego, quod fuerat quondam solidissima tellus
Esse fretum

But it is most probable, that the great philosopher alluded to the partial destruction of the *Atlantica insula*, mentioned by *Plato* as a distant tradition in his days*. It was effected by an earthquake and a deluge, which might have rent asunder the narrow isthmus in question, and left *Britain*, large as it seems at present, the mere wreck of its original size†. The *Scilly* isles, the *Hebrides*, *Orkneys*, *Shetlands*, and perhaps the *Feroe* islands, may possibly be no more than fragments of the once far-extended region. I have no quarrel about the word *island*. The little isthmus, compared to the whole, might have been a junction never attended to in the limited navigations of very early times. The peninsula had never been wholly explored, and it passed with the ancients for a genuine island. The correspondency of strata on part of the opposite shores of *Britain* and *France*, leaves no room to doubt but that they were once united. The chalky cliffs of *Blanc-nez*, between *Calais* and *Bologne*, and those to the westward of *Dover*, exactly tally: the last are vast and continued; the former short, and the termination of the immense bed. Between *Bologne* and *Folkestone* (about six miles from

CHALKY STRATA.

* *Plato* died about the year 347 before CHRIST, aged 81. *Pythagoras*, about 497, aged 90.
† See this opinion farther discussed by Mr. Somner, *Ph. Trans. Abridg.* ix. 239.

the latter) is another memorial of the junction of the two countries; a narrow submarine hill, called the *Rip-raps*, about a quarter of a mile broad, and ten miles long, extending eastwards towards the *Goodwin Sands*. Its materials are boulder-stones, adventitious to many strata. The depth of water on it, in very low spring-tides, is only fourteen feet. The fishermen from *Folkstone* have often touched it with a fifteen feet oar; so that it is justly the dread of navigators. Many a tall ship has perished on it, and sunk instantly into twenty-one fathoms water. In July 1782, the *Bellisle* of sixty-four guns struck, and lay on it during three hours; but, by starting her beer and water, got clear off.

RIP-RAPS.

These celebrated freights are only twenty-one miles wide in the narrowest part. From the pier at *Dover* to that at *Calais* is twenty-four. It is conjectured, that their breadth lessens, and that they are two miles narrower than they were in antient times. An accurate observer of fifty years, remarks to me, that the encreased height of water, from a decrease of breadth, has been apparent even in that space. The depth of the channel, at a medium, in highest spring-tides, is about twenty-five fathoms. The bottom, either coarse sand or rugged scars, which have for ages unknown resisted the attrition of the currents. From the freights, both eastward and westward, is a gradual increase of depth thorough the channel to a hundred fathoms, till soundings are totally lost or unattended to.

WIDTH OF THE
STREIGHTS.

DEPTH.

The spring-tides in the freights rise, on an average, twenty-four feet; the neap-tides fifteen. The tide flows from the *German sea*, passes the freights, and meets, with a great rippling, the western tide from the ocean, between *Fairleigh*, near *Hastings*, and *Bologne**; a proof, that if the separation of the land was effected by the seas, it must have been by the overpowering weight of those of the north.

It is most certain, that *Britain* was peopled from *Gaul*. Similar customs, as far as can be collected, evince this fact. The period is beyond the reach of history.

BRITAIN, WHENCE
PEOPLED.

* All the intelligence respecting the tides, &c. in these parts, I received from Mr. *James Hammond* of the custom-house, *Dover*, and Mr. *William Cowly*, a veteran pilot of the same place.

Beyond the measure vast of thought,
 The works, the wizard TIME hath wrought !
 The Gaul, it's held of antique story,
 Saw Britain link'd to his now adverse strand ;
 No sea between, nor cliff sublime and hoary,
 He pass'd with unwet feet through all our land.
 To the blown Baltic then, they say,
 The wild waves found another way. &c.

COLLINS's *Ode to Liberty*.

If, after the event by which our island was torn from the continent, the migration over so narrow a strait might, in the earlier ages, have been very readily effected in the *vitilia navigia* or coracles, or the *monoxyla* or canoes in use in the remote periods ; but the numerous species of Quadrupeds never could have swam into our island, even over such a contracted water, which at all times must have been possessed by tides so rapid, as to baffle their utmost efforts ; their passage, therefore, must have been over the antient isthmus ; for it is contrary to common sense to suppose, that our ancestors would have been at the trouble of transporting such guests as wolves and bears, and the numerous train of lesser rapacious animals, even had it been practicable for them to have introduced the domestic and useful species.

Would they on board or Bears or Lynxes take,
 Feed the She-adder, and the brooding Snake ?

PRIOR.

QUADRUPEDS.

Men and beasts found their way into *Great Britain* from the same quarter. We have no Quadrupeds but what are also found in *France* ; and among our lost animals may be reckoned the *Urus*, p. 2 ; Wolf, N° 9 ; Bear, N° 20 ; Wild Boar ; and the Beaver, N° 40 : all which were once common to both countries. The *Urus* continued among us in a state of nature as late at least as the year 1466 * : and I have seen some of their descendants, scarcely to be called tame, in confinement in the parks of *Drumlanrig* and *Chillingham* †. The *Caledonian* Bears were exported to *Rome*, and esteemed for their fierceness ‡. They continued in *Scotland* till the year 1057. They existed in *Wales*, perhaps, till the same period ; for our antient laws ranked them among the beasts of chase §. Wolves infested even the middle counties of *England* as late as the year 1281, and continued their ravages in *North Britain* in the reign of Queen *Elizabeth* ; nor were they wholly extirpated till the year 1680. The Wild

* Six Wild Bulls were used at the installation feast of *George Nevil*, archbishop of *York*. *Leland's Collect.* vi. 2. † *Tours in Scotland*. ‡ *Martial. Plutarch*. § *Raii Syn. Quad.* 214.

E N G L A N D.

Boars were common in the neighborhood of *London* in the reign of *Henry II.* and continued in our kingdom, in a wild state, till 1577: they were then only to be found in the woods of Lord *Latimer*, who, we are informed by Doctor *Mouset*, took great delight in their chase*. Let me add, from the same authority, that Roebucks were found at the same period in *Wales*, and among the *Cheviot hills*; they are now confined to the Highlands of *Scotland*. Finally, Beavers inhabited *Wales* in 1188, when our historian, *Giraldus*, made his progress through the principality. Every one of these animals are at this time to be found in *France*, the *Urus* excepted. *Theodebert*, king of *France*, perished in the chase of one about the year 548 †; but it is probable that the species must have existed in that vast kingdom long after that event.

The Elk, N° 3; Genet, *Hist. Quad.* N° 224; Lynx, N° 150; Fat Dormouse, *Hist. Quad.* N° 287; Garden Dormouse, *Hist. Quad.* N° 288; and the Bats *Serotine*, *Pipistrelle*, and *Barbastelle*, *Hist. Quad.* N° 408, 409, 410, either never reached our island, or if they did, perished so early, that even their very names in the *British* tongue, have perished with them. The *Ibex*, *Hist. Quad.* N° 13, and the *Chamois*, *Hist. Quad.* N° 17, inhabitants only of the remote *Gaulish Alps* and *Pyreneans*, probably never reached us. *France*, therefore, possesses forty-nine species of Quadrupeds; we only thirty-nine. I exclude two species of Seals ‡ in both reckonings; being animals which had at all times powers of making themselves inhabitants of the coasts of each kingdom.

Birds, which have the ready means of wafting themselves from place to place, have notwithstanding, in numbers of instances, their limits. Climate confines some within certain bounds, and particular sorts of food induce others to remain within countries not very remote from us; yet, by wonderful instinct, birds will follow cultivation, and make themselves denizens of new regions. The *Cross-bill* has followed the apple into *England*. *Glenco*, in the *Highlands* of *Scotland*, never knew the Partridge, till its farmers of late years introduced corn into their lands: nor did Sparrows ever appear in *Siberia*, till after the *Russians* had made arable the vast wastes of those parts of their dominions. Finally, the *Rice Buntings*, p. 360, natives of *Cuba*, after the planting of rice in the *Carolinas*, annually quit the island in myriads, and fly over sea and land, to partake of a harvest introduced there from the distant *India*.

BIRDS.

* *Health's Improvement.*

† *Ecole de la Chasse*, clxi.

‡ The Common Seal, is common to the ocean and *Mediterranean* sea. Possibly the *Mediterranean* Seal, *Hist. Quad.* N° 376, may be so likewise.—This work is always intended, when the name of the work referred to is not added to the numbers.

FRANCE,

FRANCE, as it exceeds in variation of climate, so it exceeds us in the number of species of birds. We can boast of only one hundred and thirty-one kinds of land-birds, and one hundred and twenty-one of water-fowl. France, on the contrary, has one hundred and fifty-six of the first, and one hundred and thirteen of the last. This computation may not be quite accurate; for no one has as yet attempted its *Fauna*, which must be very numerous, in a kingdom which extends from *Calais*, in about lat. 51, to *Collioure* in the south of *Roussillon*, on the *Mediterranean* sea, in about lat. 42. The northern parts possess the birds in common with *England*: and in all probability the provinces in the *Mediterranean* annually are visited by various species from northern *Africa*.

COASTS OF BRITAIN.

Stupendous and precipitous ranges of chalky cliffs attend the coast, from *Dover* eastward, and, from their color, gave the name of *Albion* to our island. Beneath one of them anchored *Cesar*, fifty-five years before CHRIST, and so near as to be capable of being annoyed by the darts of the *Britons*. After weighing anchor, he sailed up a bay, now occupied by meadows, and landed at *Rutupium*, *Richborough*, opposite to the present *Sandwich*. The walls of the former still evince its antient strength; and the vestiges of a quay, now bounded by a ditch, points out the anchorage of the *Roman* commerce. The adjacent *Thanet*, the *Thanatos* of the antients, at present indistinguishable from the main land, was in old times an island, separated by a deep channel, from a mile and a half to four miles in width, the site of *Roman* settlements; and, in 449, celebrated for having been the first landing-place of the invading *Saxons*; to whom it was assigned as a place of security by the imprudent *Vortigern*. But such a change has time effected, that *Thanet* no more exists as an island; and the *Britanniarum Portus*, in which rode the *Roman* navies, is now filled with marshy meads.

After passing the lofty chalky promontory, the *North Foreland*, opens the estuary of the *Thames*, bounded on each side by low shores, and its channels divided by numerous sand-banks; securely passed, by reason of the perfection of navigation, by thousands of ships frequenting annually *London*, our emporium, envied nearly to impending decline.

SUFFOLK AND NORFOLK.

On the projecting coasts of *Suffolk* and *Norfolk*, arise, in certain intervals, eminences of different matter. Loamy cliffs appear about *Leosloffe*, *Dunwich*, &c. The *Crag-pits* about *Woodbridge*, are prodigious pits of sea-shells, many of them perfect and quite solid; an inexhaustible fund of manure for arable lands. About *Yarmouth*, and from thence beyond *Wintertonefs*, the coast is low, flat, and composed of shingle, backed by sand. From *Happsburgh* to *Cromer* are a range of lofty clayey precipices, rising from the height of forty to a hundred feet perpendicular; a prey to the ocean, which has effected great changes in these parts. About *Sherringham* and *Cley*, it rises into pretty and gentle hills, sloping down into a rough

rough shore, of little rocks and stones. At *Holkham*, *Wells*, and *Wareham*, the sandy shores terminate in little hillocks of sand, kept together by the *Arundo Arenaria*, or *Bent*, the great preservative against the inundations of sand, which would otherwise destroy whole tracts of country, and in particular soon render useless the range of salt-marshes which these are backed with. *Hunstanton* cliff rises a distinguished feature in this flat tract. The surface is the usual vegetable mould, about a foot deep; beneath that are two feet of small broken pieces of chalk: the solid stratum of the same, after having been lost for numbers of miles, here again makes its appearance, and forms a solid bed thirty feet in thickness, resting on a hard red stone four feet deep, which is often ground and made into a red paint. Seven feet of loose friable dirty yellow stone succeeds, placed on a base of iron-colored plumb-pudding-stone, projecting into the sea, with vast fragments scattered over the beach. This cliff is about eighty feet high, lies on the entrance of the washes, the *Metaris Esluarium* of *Ptolemy*. From hence, all the coast by *Snettisham* to *Lynn* is low, flat, and shingly.

From *Holm*, the northern promontory of *Norfolk*, the sea advances deeply westward, and forms the great bay called the *Washes*, filled with vast sand-banks, the summits of which are dry at low water; but the intervening channels are the means of prodigious commerce to *Lynn* in *Norfolk*, seated on the *Ouze*, which is circulated into the very inland parts of our island, through the various rivers which fall into its long course. *Lynn* is mentioned in the *Doomsday Book*; but became considerable for its commerce with *Norway* as early as the year 1284.

The opposite shore is that of *Lincolnshire*. Its great commercial town, *Boston*, stands on the *Witham*, a few miles from the head of the bay. Spring-tides rise at the quay fourteen feet, and convey there vessels of above a hundred tons; but greater ships lie at the *Scap*, the opening of the estuary. Such is the case at *Lynn*; for the sluggish rivers of these tame tracts want force to form a depth of water.

Lincolnshire, and part of six other counties, are the *Pais-bas*, the *Low Countries* of *Britain*; the former bounded on the western part by a range of elevated land, which, in this humble county, overlooks, as *Alps* would the ocean, the remaining part. This very extensive tract, from the *Scap* to the northern headland opposite to *Hull*, presents to the sea a bow-like and almost unindented front; and so low as to be visible from sea only at a small distance; and churches, instead of hills, are the only landmarks to seamen. The whole coast is fronted with salt-marshes or sand-hills, and secured by artificial banks against the fury of the sea. Old *Holmshead* gives a long list of ports on this now inhospitable coast. *Waynfleet*, once a noted haven, is at present a mere creek. *Skegness*, once a large walled town, with a good harbour, is now an inconsiderable place a mile from the sea: and the port of *Grimsby*.

LINCOLNSHIRE.

Grimesby, which in the time of *Edward III.* furnished him with eleven ships, is now totally choaked with sand.

The *Great Level*, which comprehends *Holland* in this county, with part of *Northamptonshire*, *Norfolk*, *Suffolk*, *Cambridge*, and *Huntingdon*, a tract of sixty computed miles in length, and forty in breadth, had been originally a wooded country. Whole forests of firs and oaks have been found in digging, far beneath the moor, on the solid ground; oaks fifteen feet in girth, and sixteen yards long, mostly burnt at the bottoms, the antient method of falling them: multitudes of others entirely rooted up, as appears, by the force of the sea bursting in and overwhelming this whole tract, and covering it with *silt*, or the mud which it carried with it from time to time. *Ovid's* beautiful account of the deluge was here verified; for under *Conington Down*, in *Huntingdonshire*, was found the skeleton of a whale near twenty feet long, which had once swam secure to this distance from its native residence.

Et modo quâ graciles gramen carpere capellæ,
Nunc ibi deformes ponunt sua corpora phocæ.

——— Iylvasque tenent delphines, et altis
Incurfant ramis, agitataque robora pulfant.

In process of time this tract underwent another revolution. The *silt* or mud gained so considerably as to leave vast spaces dry, and other parts so shallow as to encourage the *Romans* to regain these fertilized countries from the sea. Those sensible and indefatigable people first taught us the art of embanking, and recovered the valuable lands we now possess. It was the complaint of *Galgacus*, that they exhausted the strength of the *Britons*, in *sylvis et paludibus emuniendis* *, 'in clearing woods and draining marshes.' After the *Romans* deserted our island, another change took place. Neglect of their labors succeeded: the drains were neglected, and the whole became fen and shallow lake, resembling the present east fen; the haunt of myriads of water-fowl, or the retreat of banditti. *Ely* and many little tracts which had the advantage of elevation, were at that period literally islands. Several of these in early times became the retreat of religious. *Ely*, *Thorney*, *Ramsay*, *Spiney*, and others, rose into celebrated abbies, and by the industry of their inhabitants first began to restore the works of the *Romans*. The country above *Thorney* is represented by an old historian † as a paradise. Constant visitations, founded on wholesome laws, preserved this vast recovered country: but on the rapid and rapacious dissolution, the removal of numbers of the inhabitants, and the neglect of the laws of the *Sewers*, the drains were filled, the cultivated land overflowed, and

* *Vita Agricola.*

† *Malmſbury*, lib. iv. 294.

the country again reduced to a useless morass*. In the twentieth of *Elizabeth* the state of the country was taken into consideration†; no great matters were done till the time of *Francis*, and *William* his son, earls of *Bedford*, who attempted this *Herculean* work, and reclaimed this vast tract of more than three hundred thousand acres; and the last received, under sanction of parliament, the just reward of ninety thousand acres. I speak not of the reliques of the antient banks which I have seen in *Holland*, *Lincolnshire*, now remote from the sea, nor yet of the *Roman* tumuli, the coins, and other evidences of the residence of that nation in these parts; they would swell a mere preface to too great a length: and, it is to be hoped, will be undertaken by the pen of some native, who will perform it from his actual survey.

The vast fenny tracts of these counties were in old times the haunts of multitudes of water-fowl; but the happy change, by attention to draining, has substituted in their place thousands of sheep; or, instead of reeds, made those tracts laugh with corn. The Crane, which once abounded in these parts, has even deserted our island. The Common Wild Duck still breeds in multitudes in the unreclaimed parts; and thousands are sent annually to the *London* markets, from the numerous decoys. The Grey Lag Goose, *Br. Zool.* ii. N° 266, the origin of the Tame, breeds here, and is resident the whole year: a few others of the Duck kind breed here. Ruffs, Redshanks, Lapwings, Red-breasted Godwits, and Whimbrels, are found here during summer; but, with their young, in autumn, disperse about the island. The Short-eared Owl migrates here with the Woodcock, and is a welcome guest to the farmer, by clearing the fields of mice. Knots swarm on the coasts in winter: are taken in numbers in nets: yet none are seen during summer‡. The most distant north is probably the retreat of the multitude of water-fowl of each order which stock our shores, driven southward by the extreme cold: most of them regularly, others, whose nature enables them to brave the usual winters of the frigid zone, are with us only accidental guests, and in seasons when the frost rages in their native land with unusual severity.

From *Clea Ness*, the land retires westward, and, with the opposite shore of *Yorkshire*, bounds the great estuary of the *Humber*, which, winding deep into the country, is the receptacle of the *Trent*, and all the considerable rivers of that vast province; some of which arise in its most remote parts. All these coasts of *Lincolnshire* are flat, and have been gained from the sea. *Barton* and *Barrow* have not at present the least appearance of ports; yet by *Holinshed* were styled good ones§. Similar

* Compare Sir *W. Dugdale's* maps of this tract, in its morassy and drained state. *Hist. Embank.* p. 375. 416. † Same, p. 375.

‡ See *Tour in Scotland*, 1769; *Lincolnshire*, where the fen birds are enumerated.

§ *Descr. Britain*, 108.

accidents have befallen the upper part of the low tract of *Holderness*, which faces the congruent shores. *Hedon*, a few miles below *Hull*, several hundred years ago a port of great commerce, is now a mile and a half from the water, and has long given way to the rising fortune of the latter (a creation of *Edward I.* in 1296) on account of the excellency of its port. But in return, the sea has made most ample reprisals on the lands of this hundred: the site, and even the very names of several places, once towns of note upon the *Humber*, are now only recorded in history: and *Raenstrop* was at one time a rival to *Hull**; and a port so very considerable in 1332, that *Edward Baliol* and the confederated *English* barons sailed from hence with a great fleet to invade *Scotland*; and *Henry IV.* in 1399, made choice of this port to land at, to effect the deposal of *Richard II.* yet the whole of it has long since been devoured by the merciless ocean: extensive sands, dry at low water, are to be seen in their stead; except *Sunk Island*, which, till about the year 1666, appeared among them like an elevated shoal, at which period it was regained, by embankments, from the sea; and now forms a considerable estate, probably restored to its pristine condition.

SPURN HEAD.

Spurn Head, the *Oculum Promontorium* of *Ptolemy*, terminates this side of the *Humber*, at present in form of a sickle, near which the wind-bound ships anchor securely. The place on which the lighthouses stand is a vast beach near two miles long, mixed with sand-hills flung up by the sea within the last seventy years.

The land from hence for some miles is composed of very lofty cliffs of brown clay, perpetually preyed on by the fury of the *German* sea, which devours whole acres at a time, and exposes on the shores considerable quantities of beautiful amber. Fine wheat grows on the clay, even to the edge of the cliffs. A country of the same fertility reaches from *Kilnsey*, near this place, as far as the village of *Sprotby*, extending, in a waved form, for numbers of miles; and, when I saw it, richly clothed with wheat and beans.

From near *Kilnsey* the land bends very gently inward, as far as the great promontory of *Flamborough*; and is a continuance of high clayey cliff, till about the village of *Hornsey*. Near it is a mere, noted for its Eels and Pikes, at present separated from the sea by so small a space as to render its speedy destruction very probable. A street, called *Hornsey Beck*, has long since been swallowed: and of *Hide*, a neighboring town, only the tradition is left.

BRIDLINGTON BAY.

The country grows considerably lower; and, near the base of the promontory, retires so far in as to form *Bridlington* bay, antiently called *Gabrantovicorum* *Ænus*, to which the Geographer adds *Ενλίστιον*, on account of the excellency and

* *Madox. Ant. Exch. i. 422.*

safety of its port, where vessels ride in full security under the shelter of the lofty head-land. *Smithie* sand, the only one between *Flamborough* and *Spurn Head*, stretches across the entrance into *Bridlington* bay, and, in hard gales from the north and north-east, adds to the security of that noble asylum for the coasting vessels. *Sureby*, an adjacent village, seems no more than a translation from the old appellation. The *Romans*, in all probability, had a naval station here; for here ends the road, visible in many places between this place and *York*, and named, from its founders, the *Roman ridge*.

The head is formed of lime-stone, of a snowy whiteness*, of a stupendous height, and vast magnificence, visible far at sea. If we may depend on *Richard of Cirencester*, the *Romans* named it *Brigantum Extrema*, and the bay *Portus Felix*. The *Saxons* styled the cape *Fleamburg*, perhaps from the lights which directed the great *Ida*, founder of the *Northumberland* kingdom, to land here, in 547, with a great body of their countrymen.

FLAMBOROUGH
HEAD.

The vast height of the precipices, and the amazing grandeur of the caverns which open on the north side, giving wide and solemn admission, through most exalted arches, into the body of the mountain; together with the gradual decline of light, the deep silence of the place unless interrupted by the striking of the oar, the collision of a swelling wave against the sides, or the loud flutter of the pigeons affrighted from their nests in the distant roof; afford pleasures of scenery which such formations as this alone can yield. These also are wonderfully diversified. In some parts the caverns penetrate far, and end in darkness; in others are pervious, and give a romantic passage by another opening equally superb. Many of the rocks are insulated, of a pyramidal form, and soar to a great height. The bases of most are solid; but in some pierced through and arched. All are covered with the dung of the innumerable flocks of migratory birds which resort here annually to breed, and fill every little projection, every hole, which will give them leave to rest. Multitudes were swimming about; others swarmed in the air, and stunned us with

* Soft near the top, and of a crumbling quality when exposed long to the frost. At the foot of the cliff it is hard, solid, and smooth. Boats are employed every summer in carrying great quantities to *Sunderland*, where it is burnt into excellent lime. Most of the lime-stone used at *Scarborough* is made from stones flung up by the sea. It may be remarked, that whatsoever degree of hardness any lime-stone possesses in the quarry, the mortar made from it, by proper management, may be made as hard, but by no means harder. Most of the houses in and about *London* are built with lime made of chalk; hence the many miserable casualties there, by the fall of houses. The workmen, sensible of the weakness of that kind of mortar, endeavour to keep the walls together by lodging frames of timber in them; which being consumed in cases of fire, the whole building tumbles suddenly, and renders all attempts to extinguish the fire very dangerous.—*Mr. Travis*.

the variety of their croaks and screams. Kittiwakes and Herring Gulls, Guillemots and Black Guillemots, Auks, Puffins, Shags, and Corvorants, are among the species which resort hither. The notes of all sea-fowl are most harsh and inharmonious. I have often rested under rocks like these, attentive to the various sounds over my head; which, mixed with the deep roar of the waves slowly swelling, and retiring from the vast caverns beneath, have produced a fine effect. The sharp voice of the Gulls, the frequent chatter of the Guillemots, the loud notes of the Auks, the scream of the Herons, together with the deep periodical croak of the Corvorants, which serves as a bass to the rest, have often furnished me with a concert, which, joined to the wild scenery surrounding me, afforded in an high degree that species of pleasure which results from the novelty and the gloomy majesty of the entertainment.

ROCKY COASTS
BEGIN.

At *Flamborough* head commence the hard or rocky coasts of this side of *Great Britain*, which continue, with the interruption of a few sandy bays and low land, to the extremity of the kingdom. It often happens, that the bottom of the sea partakes of the nature of the neighboring element: thus, about the head, and a few miles to the northward (in places) the shores are rocky, and the haunts of lobsters and other crustaceous animals. From these strata a tract of fine sand, from one to five miles in breadth, extends sloping eastward, and from its edge to that of the *Dogger-bank* is a deep bottom, rugged, rocky, and cavernous, and in most parts overgrown with corallines and submarine plants.

This disposition of shore gives to the inhabitants of this coast the advantageous fishery which they possess; for the shore on one hand, and the edges of the *Dogger-bank* on the other, like the sides of a decoy, give a direction to the immense shoals of the Cod genus, which annually migrate from the northern ocean, to visit, reside, and spawn, in the parts adjacent to our coasts. They find plenty of food from the plants of the rocks, and the worms of the sand, and secure shelter for their spawn in the cavernous part of the scarry bottom. It is in the channel between the banks and the shores, in which the Cod are taken, or in the hollows between the *Doggers* and *Well-bank*; for they do not like the agitation of the water on the shallows. On the contrary, the Skates, the Holibuts, Flounders, and other flat fish, bury themselves in the sand, and secure themselves from the turbulence of the waves.

An amazing shoal of Haddocks visit this coast periodically, generally about the tenth of *December*, and extend from the shore near three miles in breadth, and in length from *Flamborough* head to *Tinmouth* castle, perhaps further north. An army of a small species of Shark, the PICKED, *Br. Zool.* iii. N° 40, flanks the outside of this shoal to prey upon it; for when the fishermen cast their lines beyond

beyond the distance of three miles from land, they never catch any but those voracious fish *.

Between *Flamborough* head and *Scarborough* projects *Filey Brig*, a ledge of rocks running far into the sea, the cause of frequent shipwrecks. *Scarborough* castle, seated on a vast rock projecting into the water, succeeds. The spring-tides, at the time of the equinoxes, rise here twenty-four feet; but at other times only twenty: the neap-tides from twelve to sixteen. Then *Whitby*, noted for its neighboring allum-works, and more for its fine harbour, the only one on the whole coast: the admittance into which is a narrow channel between two high hills: it expands largely within, and is kept clean by the river *Esk*. From hence to the mouth of the *Tees*, the boundary between this county and that of *Durham*, is a high and rude coast, indented with many bays, and varied with little fishing villages, built strangely among the cliffs, filling every projecting ledge, in the same manner with those of the peasants in the picturesque and rocky parts of *China*.

The *Tees*, the northern limit of this great county, opens with a wide mouth and mudded bottom into the sea. This was the *Dunum Estuarium* of *Ptolemy*; and serves as a brief entrance for navigators into the country. Almost all the northern rivers descend with a rapid course, from their mountainous rise and supply; and afford but a short navigation. From hence the lead of the mineral parts of *Durham*, and the corn of its more level parts, are imported. In the mud of this estuary, more particularly, abounds the *Myxine Glutinosa* of *Linnaeus*, the Hag of the neighboring fishermen; a worm, which enters the mouths of the fish taken on hooks, that remain a tide under water, and devours the whole, leaving only the skin and bones. This also is the worm which converts water into a sort of glue.

From *Seaton Snook*, in the bishoprick of *Durham*, to *Hartlepool*, is a series of sand-banks, and the shore a long-continued sandy shallow. From the *Ness Point* of *Hartlepool* to *Blackhalls* is a rocky lime-stone coast, with frequent intervals of sand-bank, and a stony beach; but *Seaham* and *Hartlepool* is so very rugged, that no enemy could land, or even stand off the shore, without the most imminent danger: in particular, the coasts about *Hawthorn Hive* are bold, excavated, and formed into grotesque figures, for several miles, and the shores rough with a broken and heavy sea, by reason of the hidden rocks and spits of sands which run out far

FILEY BRIG.

TEES.

DURHAM.

from

* Consult vol. iii. of the *Br. Zoology* for an account of the fish on this coast: also the *Tour in Scotland*, 1769. To Mr. *Travis*, Surgeon in *Scarborough*, I am indebted for the most curious articles.

NORTHUMBER-
LAND.

from land. From *Seham* to *Sunderland* are sand-hills and shallow sandy beaches. From *Woremouth* to near *Cleadon*, low rocks of lime-stone form the coast, here and there intersected with sand-hills and stony beaches. From thence to the mouth of the *Tyne*, and even to *Dunstanbrough* in *Northumberland*, the shore is sandy, and the land in a few places rocky; but from thence to *Bamborough*, the coasts are high and rocky, in many places run far into the sea, and at low tides shew their heads above water.

Bamborough castle stands on the last of the range of rocky cliffs. This fortress was founded by the *Saxon* monarch *Ida*. After various fortunes it, has proved in its dismantled state of more use to mankind than when it boasted some potent lord and fierce warders. A charitable prelate of the see of *Durham* purchased the estate, and left it for the use of the distressed seamen who might suffer shipwreck on this dangerous coast, and to unconfined charitable purposes, at the discretion of certain trustees. The poor are, in the dearest seasons, supplied with corn at a cheap rate; the wrecked, found senseless and benumbed with cold, are taken instantly into these hospitable walls, and restored to life by the assistance of food, medicine, and warm beds; and if the ship is capable of relief, that also is saved, by means of machines always ready for the purpose*.

FARN ISLES.

The *Farn islands*, or rather rocks, form a group at no great distance from shore; the nearest a mile and sixty-eight chains; the farthest about seven. These probably, at some remote period, have been convulsed from the land, but now divided from it by a furious tide, rushing through a channel from five to twelve fathoms in depth. The original sea, to the east of the *Staples*, the remotest rocks, suddenly deepens to forty or fifty fathoms. *St. Cuthbert* first made these rocks of note: he occasionally made the largest of them the seat of his devotion and seclusion from the world; expelling, says superstition, the malignant spirits, the pre-occupants. Some remains of a chapel are still to be seen on it. For ages past, the sole tenants are a few cows, wafted over from the main land in the little cobs, or boats of the country; and the Eider Ducks, *Arct. Zool.* ii. N° 480, still distinguished here by the name of the Saint. Numberless sea-fowls, and of great variety of kinds, possess the remoter rocks, on which they find a more secure retreat than on the low-cliffed shores. To the marine feathered tribe the whole coast from *Flamborough* head to that of *St. Ebb's* is inhospitable. They seek the loftiest promontories. Where you hear of the haunts of the Razor-bills and Guillemots, Coryorants and Shags, you may be well assured, that

* *Tour in Scotland*, 1769; and fuller in *Mr. Hutchinson's Northumberland*, ii. 176.

† *Adair. Hammond. Thompson.*

the cliffs soar to a distinguished height. Where those are wanting, they retire to sea-girt rocks, as spots the least accessible to mankind. The five species of Auks and Guillemots appear in spring, and vanish in autumn: the other birds preserve their native haunts, or spread along the neighboring shores.

From *Bamborough* to the mouth of the *Tweed* is a sandy shore, narrowing as it approaches our sister kingdom. *Lindesfarn*, or the *Holy island*, with its ruined cathedral and castle, lie remote from shore, accessible at every recess of tide, and possibly divided from *Northumberland* by the power of the waves in distant ages. The tides do not swell over this tract in the usual manner of apparent flowing and gradual approach; but ooze gently out of every part of the sand, which at first appears a quaggy extent, then, to the terror of the traveller, surrounds him with a shining plain of smooth unruffled water, reflecting the varied landscapes of the adjoining shores *.

The *Tweed*, the antient *Alannus*, a narrow geographical boundary between us and our fellow-subjects the *Scottish* nation, next succeeds. After a short continuance of low land, *St. Ebb's head*, a lofty promontory, projects into the sea (frequented in the season by Razor-bills, Guillemots, and all the birds of the *Bass*, excepting the Gannet) and its lower part is hollowed into most august caverns. This, with *Fifeness*, about thirty miles distant, forms the entrance into that magnificent estuary the firth of *Forth*, which extends inland sixty miles; and, with the canal from *Carron* to the firth of *Clyde*, intirely insulates the antient *Caledonia*. The isle of *May* appears near the northern side of the entrance; the vast towering rock, the *Bass*, lies near the southern. This lofty island is the summer resort of birds innumerable, which, after discharging the first duty of nature, seek, with their young, other shores or other climates. This is one of the few spots in the northern hemisphere on which the Gannets nestle. Their size, their snowy plumage, their easy flight, and their precipitate plunge after their prey, distinguish them at once from all the rest of the feathered tenants of the isle, the Corvorants and Auks, the flights of whom are rapid, and the Gulls, which move with sluggish wing,

Near the *Bass* the entrance narrows, then opens, and bending inwards, forms on each side a noble bay. The *Firth* contracts to a very narrow streight at *Queensferry*; then winds beautifully, till it terminates beyond *Alloa*, in the river to which it owes its name. The shores are low, in part rocky, in part a pleasant beach; but every where of matchless beauty and population. *Edinburgh*, the capital, rises with true grandeur near the shore, with its port, the great em-

SCOTLAND.

ST. EBB'S HEAD.

FIRTH OF FORTH.

* Mr. Hutchinson, ii. 151.

porium, *Leith*, beneath, where the spring-tides sometimes rise fifteen and sixteen feet, and to seventeen or eighteen when the water is forced up the firth by a violent wind from the north-east. Almost every league of this great estuary is terminated with towns or villages, the effects of trade and industry. The elegant description of the coast of *Fife*, left us by *Johnston**, is far from being exaggerated; and may, with equal justice, be applied to each shore.

FIFESHIRE, bounded by the firths of *Forth* and *Tay*, projects far into the sea; a country flourishing by its industry, and happy in numbers of ports, natural, artificial, or improved. Coal and lime, the native productions of the county, are exported in vast quantities. Excepting the unimportant colliery in *Sutherland*, those at *Largo Wood*, midway between the bay and *St. Andrews*, are the last on this side of *North Britain*. The coasts in general of this vast province are rocky and precipitous; but far from being lofty. The bays, particularly the beautiful one of *Largo*, are finely bounded by gravelly or sandy shores; and the land, in most parts, rises high to the middle of the county. Towards the northern end, the river *Edin*, and its little bay, by similarity of sound point out the *Tinna* of the old geographer.

BIRTH OF TAY.

The estuary of the *Tay* limits the north of *Fifeshire*. Before the mouth extends the sand retaining the *British* name of *Aber-tay*, or the place where the *Tay* discharges itself into the sea. The *Romans* preserved the antient name, and Latinized it into *Tava*. The entrance, at *Brough-tay* castle, is about three quarters of a mile wide; after which it expands, and goes about fourteen miles up the country before it assumes the form of a river. At the recess of the tides there appears a vast extent of sands, and a very shallow channel; but the high tides waft, even as high as *Perth*, vessels of a hundred and twenty tons. The shores are low, and the ground rises gently inland on the southern side: on the north it continues low, till it arrives at the foot of the *Grampian* hills, many miles distant. In some remote age the sea extended on the north side far beyond its present bounds. At a considerable distance above the flourishing port of *Dundee*, and remote inland, anchors have been found deep in the soil†. When these parts were deserted by the sea, it is probable that some opposite country was devoured by an inundation, which occasioned this partial desertion.

From thence to *Aberbrothick*, in the shire of *Angus*, noted for the venerable remains of its abbey, is a low and sandy shore. From *Aberbrothick* almost to *Monroise*, arises a bold rocky coast, lofty and precipitous, except where interrupted by the beautiful semicircular bay of *Lunan*. Several of the cliffs are penetrated by

* See *Tour in Scotland*, 1772. part ii. p. 212.

† *Douglas's East Coast of Scotland*, 14.

most amazing caverns; some open into the sea with a narrow entrance, and internally instantly rise into high and spacious vaults, and so extensively meandering, that no one as yet has had the courage to explore the end. The entrance of others shames the work of art in the noblest of the Gothic cathedrals. A magnificent portal appears divided in the middle by a great column, the basis of which sinks deep in the water. Thus the voyager may pass on one side in his boat, survey the wonders within, and return by the opposite side.

The cavern called the *Geylit-pot*, almost realises in form a fable in the *Persian Tales*. The hardy adventurer may make a long subterranean voyage, with a picturesque scenery of rock above and on every side. He may be rowed in this solemn scene till he finds himself suddenly restored to the sight of the heavens: he finds himself in a circular chasm, open to the day, with a narrow bottom and extensive top, widening at the margin to the diameter of two hundred feet. On attaining the summit, he finds himself at a distance from the sea, amidst corn-fields or verdant pastures, with a fine view of the country, and a gentleman's seat near to the place from which he had emerged. Such may be the amusement of the curious in summer calms! but when the storms are directed from the east, the view from the edge of this hollow is tremendous; for, from the height of above three hundred feet, they may look down on the furious waves, whitened with foam, and swelling from their confined passage.

Peninsulated rocks often jut from the face of the cliffs, precipitous on their sides, and washed by a great depth of water. The isthmus which joins them to the land, is often so extremely narrow as to render it impassable for more than two or three persons a-breast; but the tops spread into verdant areas, containing vestiges of rude fortifications, in ancient and barbarous times the retreat of the neighboring inhabitants from the rage of a potent invader*.

Montrose, peninsulated by the sea, and the basin its beautiful harbour, stands on a bed of sand and gravel. The tide rushing furiously through a narrow entrance twice in twenty-four hours, fills the port with a depth of water sufficient to bring in vessels of large burden. Unfortunately, at the ebb they must lie dry; for none exceeding sixty tons can at that period float, and those only in the channel of the *South Esk*, which, near *Montrose*, discharges itself into the sea.

A sandy coast is continued for a small distance from *Montrose*. Rude rocky cliffs re-commence in the county of *Merns*, and front the ocean. Among the highest is *Fowls-heugh*, noted for the resort of multitudes of sea-birds. *Bervie* and *Stonehive* are two small ports overhung with rocks; and on the summit of a

MONTROSE.

* These descriptions borrowed from my own *Tours*.

most exalted one, are the vast ruins of *Dunnoter*, once the property of the warlike family of the *Keiths*. The rocks adjacent to it, like the preceding, assume various and grotesque forms.

A little farther the antient *Deva*, or *Dee*, opens into the sea, after forming a harbour to the fine and flourishing town of *Aberdeen*. A sandy coast continues for numbers of miles, part of which is so moveable as almost totally to have overwhelmed the parish of *Furvie*: two farms only exist, out of an estate, in 1600, valued at five hundred pounds a year.

**BULLERS OF
BUCHAN.**

A majestic rocky coast appears again. The *Bullers of Buchan*, and the noble arched rock, so finely represented by the pencil of the Reverend Mr. *Cordiner**, are justly esteemed the wonders of this country. The former is an amazing harbour, with an entrance through a most august arch of great height and length. The inside is a secure basin, environed on every side by mural rocks: the whole projects far from the main land, and is bounded on each side by deep creeks; so that the traveller who chuses to walk round the narrow battlements, ought first to be well assured of the strength of his head.

PETERHEAD.

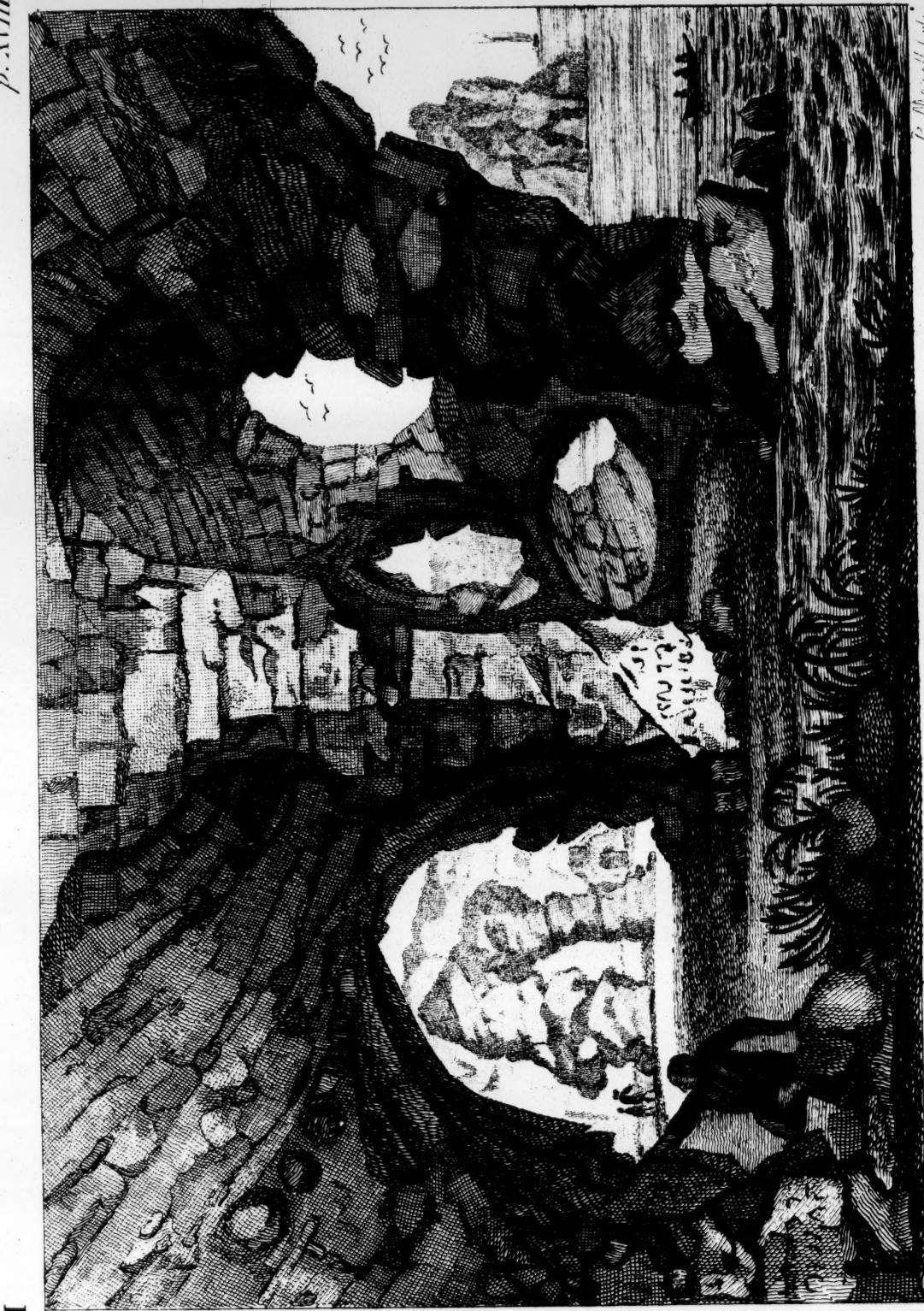
A little farther is *Peterhead*, the most eastern port of *Scotland*, the common retreat of wind-bound ships; and a port which fully merits the attention of government, to render it more secure. *Kinnaird-head*, the *Taizalum promontorium*, lies a little farther north, and, with the north-eastern extremity of *Cathness*, forms the firth of *Murray*, the *Tua Æstuarium*, a bay of vast extent. *Troup-head* is another vast cape, to the west of the former. The caverns and rocks of that promontory yield to none in magnificence and singularity of shape: of the latter, some emulate the form of lofty towers, others of inclining pyramids with central arches, pervious to boats. The figures of these are the effect of chance, and owing to the collision of the waves, which wearing away the earth and crumbly parts, leave them the just subjects of our admiration. Sea-plants, shells, and various sorts of marine exanguious animals, cloath their bases, washed by a deep and clear sea; and their summits resound with the various clang of the feathered tribe.

**CAVERNS AND
SINGULAR ROCKS:**

HOW FORMED.

From hence the bay is bounded on the south by the extensive and rich plains of *Murray*. The shore wants not its wild beauties. The view of the noble cavern, called the rocks of *Cauffie*, on the shore between *Burgh-head* and *Loffie* mouth, drawn by Mr. *Cordiner*, fully evinces the assertion. The bottom of the bay closes with the firth of *Inverness*, from whence to the *Atlantic* ocean is a chain of rivers, lakes, and bays, with the interruption only of two miles of land between *Loch-oich* and *Loch-lochy*. Unite those two lakes by a canal, and the rest of *North Britain* would be completely insulated.

* *Antiquities and Scenery of Scotland*, letter vi. plates ii. iii.



Ch. Goddard pinx.

J. Russell del.

CAVES OF CAUSSIE.



To the north the firth of *Cromartie*, and the firth of *Tayne*, the *Vara Æstuarium*, penetrate deep into the land. From *Dornoch*, the coast of *Sutherland* is low and sandy, except in a few places: one, at the water of *Brora*, is distinguished by the beauty of the rocky scenery; in the midst of which the river precipitates itself into the sea, down a lofty precipice. The *Scottish Alps*, which heretofore kept remote from the shore, now approach very near; and at the great promontory, the *Ripa Alta* of *Ptolemy*, the *Ord*, i. e. *Aird* of *Cathness*, or the *Height* of *Cathness*, terminate in a most sublime and abrupt manner in the sea. The upper part is covered with gloomy heath; the lower is a stupendous precipice, excavated into vast caverns, the haunt of Seals and different sea-fowl. On the eastern side of the kingdom, this is the striking termination of the vast mountains of *Scotland*, which form its Highlands, the habitation of the original inhabitants, driven from their antient seats by the ancestors of Lowland Scots, descendants of Saxons, French, and Normans, congenerous with the English, yet absurdly and invidiously distinguished from them. Language, as well as striking natural boundaries, mark their place. Their mountains face on the west the *Atlantic* ocean; wind along the west of *Cathness*; among which *Morvern* and *Scaraben*, *Ben-Hop* and *Ben-Lugal* arise pre-eminent. *Sutherland* is entirely *Alpine*, as are *Ross-shire* and *Inverness-shire*. Their *Summæ Alps* are, *Meal Fourvounich*, the *Coryarich*, *Benewish*, and *Benevis* near *Fort William*; the last of which is reported to be fourteen hundred and fifty yards in height. Great part of *Aberdeenshire* lies in this tract. It boasts of another *Morvern*, soaring far beyond the others: this is in the centre of the *Grampian hills*, and perhaps the highest from the sea of any in *Great Britain*. They again comprehend the eastern part of *Perthshire*, and finish on the magnificent shores of *Loch-lomond*, on the western side of which *Ben-lomond* rises, distinguished among its fellows. From hence the rest of *North Britain* forms a chain of humbler hills; but in *Cumberland*, part of *Westmoreland*, *Yorkshire*, *Lancashire*, and *Derbyshire*, the *Alps* resume their former majesty. A long and tame interval succeeds. The long sublime tract of *Wales* arises, the antient possession of the antient *British* race. From the *Ord*, the great mountains recede inland, and leave a vast flat between their bases and the sea, fronting the waves with a series of lofty rocky precipices, as far as the little creek of *Staxigo*; the whole a bold, but most inhospitable shore for shipping. *Wick* and *Staxigo* have indeed their creeks, or rather chafms, which open between the cliffs, and may accidentally prove a retreat, unless in an eastern gale.

Sinclair and *Freswick* bays are sandy, and afford safe anchorage: from the last the country rises into lofty cliffs, many composed of small strata of stones, as regular as a mason could lay them; and before them rise insulated stacks or columns

ORD OF CATH-
NESS.

HIGHLAND ALPS.

ENGLISH.

CAMBRIAN.

sums of similar materials, some hollowed into arches; others, pillar-like, aspire in heights equal to the land*. These are animated with birds. All their economy may be viewed with ease from the neighboring cliffs; their loves, incubation, exclusion, and nutrition.

Dungby-head, the antient *Berubium*, terminates the eastern side of this kingdom; as *Far-out-head*, the old *Farvedum*, does the western. *Strathy-head*, the *Vervadrum* of *Ptolemy*, lies intermediate. The whole tract faces the north, and consists of various noted headlands, giving shelter to numerous bays, many of which penetrate deep into the country. Let me make this general remark, — that nature hath, with a niggardly hand, dealt out her harbours to the eastern coasts of the *British* isles; but shewn a profusion on their western sides. What numberless lochs, with great depth of water, wind into the western counties of *Scotland*, overshadowed and sheltered by lofty mountains! and what multitudes of noble harbours do the western provinces of *Ireland* open into the immense *Atlantic* ocean!

GERMAN OR
NORTH SEA.

TIDES, THEIR
DIRECTION;

DEPTHS.

The sea which washes the shores of *Britain*, which have passed under my review, was originally called, by one of the antients †, *Oceanus Britannicus*, forming part of that vast expanse which surrounds our islands. *Pliny* confined that title to the space between the mouth of the *Rhine* and that of the *Seine*; and bestowed on this sea the name of *Septentrionalis* ‡; and *Ptolemy* called it *Germanicus*: both which it still retains. Its northern extremity lies between *Dungby-head*, in lat. 58, 35 north, and the same latitude in the south of *Norway*. Before the separation of *Britain* from *Gaul* it could only be considered as a vast bay; but that period is beyond the commencement of record. The tides flow into it from the north-east to the south-west, according to the direction of the coast; but in mid-sea the reflux sets to the north, to discharge itself through the great channel between the *Schetland* isles and *Norway* §. The depth of water, at highest spring-tides, in the straits of *Dover*, is twenty-five fathoms: it deepens to thirty-one, between *Lowstoft* and the mouth of the *Maes*: between the *Wells-bank* and *Doggers-bank* gains, in one place only, a few fathoms. Beyond the *Dogger* it deepens from forty-eight to seventy-two: between *Buchan-ness* and *Schutness* in *Norway*, within the *Buchan* deeps, it has from eighty-six to a hundred fathoms; then decreases, towards the *Orkney* and *Schetland* isles, from seventy-five to forty; but between the *Schetlands* and *Bergen*, the northern end of this sea, the depth is from a hundred and twenty to a hundred and fifty fathoms.

* See Mr. *Cordiner's* beautiful view of a stack of this kind, tab. xv. lib. iv. c. 19.

§ Mr. *William Fergusan*.

† *Mela*.

‡ *Plin.*



Ch. Cordier pins.

P. Mazell sculp.

ROCKS near SANDSIDE.



S C O T L A N D.

The coast from *Bungay-head* to *Flamborough-head* are bold and high, and may be seen at sea from seven to fourteen leagues: from the last to *Spurn-head* is also a clear coast; but the rest of the coast of *Norfolk* and *Suffolk* is low, visible at small distance, and rendered dangerous by the number of sand-banks projecting far to sea. After passing the *Spurn-head*, navigators steer between the inner and outer *Douglings*, for the floating light kept on board a small vessel (constructed for that purpose) always anchored at the inner edge of a sand called *Dog-then's Shoal*, about eight leagues from the coast of *Lincolnshire*, in about fifteen fathom water. From thence they make for *Cromer* in *Norfolk*; and from that point, till they arrive at the *Nore*, their track is all the way through a number of narrow channels near the most dangerous sands: to which, if we add foggy weather, dark nights, storms, contrary winds, and very near adjacent lee-shores, it may be very fairly reckoned the most dangerous of the much-frequented navigations in the world.

NAVIGATION.

But fortunately, to the north of these, this sea is much more remarkable for sand-banks of utility than of danger, and would never have been observed but for the multitudes of fishes which, at different seasons, according to their species, resort to their sides, from the great northern deeps, either for the sake of variety of food which they yield, or to depose their spawn in security. The first to be taken notice of does not come within the description, yet should not be passed over in silence, as it comes within the natural history of the *North* sea. An anonymous sand runs across the channel between *Buchan-nefs* and the north end of *Juts-riff*: the least depth of water over it is forty fathoms; so that it would scarcely be thought of, did not the water suddenly deepen again, and form that place which is styled the *Buchan deeps*.

SAND-BANKS.

The *Long Bank*, or the *Long Fortys*, bears E. S. E. from *Buchan-nefs*, about forty-five miles distant, and extends southward as far as opposite to *Newcastle*; is about fifty leagues in length, and seven in breadth; and has on it from thirty-two to forty-five fathoms of water. The ground is a coarse gravel, mixed with marine plants, and is esteemed a good fishing bank.

LONG FORTYS.

The *Mar Bank* lies between the former and the shore opposite to *Berwick*; is oval, about fifteen miles long, and has about twenty-six fathom of water, and round it about forty.

The bank called *Montrose Pits* lies a little to the east of the middle of the *Long Fortys*. It is about fifty miles long, and most remarkable for five great pits or hollows, from three to four miles in diameter: on their edges is only forty fathom water; yet they suddenly deepen to seventy, and even a hundred fathom, on a soft muddy bottom: the margins on the contrary are gravelly. I enquired whether the

MONTROSE PITS.

surface

surface of this wonderful bank appeared in any way agitated, as I had suspicion that the pits might have been productive of whirlpools; but was informed, that the sea there exhibited no uncommon appearance.

DOGGERS BANK.

The noted *Doggers Bank* next succeeds. It commences at the distance of twelve leagues from *Flamborough Head*, and extends across the sea, nearly east, above seventy-two leagues, joining *Horn-riff*, a very narrow strip of sand which ends on the coast of *Jutland*. The greatest breadth is twenty leagues; and in parts it has only on it ten or eleven fathoms of water, in others twenty-four or five. To the south of the *Dogger* is a vast extent of sand-bank, named, in different parts, the

WELL BANK.

Well Bank, the *Swart Bank*, and the *Brown Bank*, all covered with sufficient depth of water; but between them and the *British* coasts are the *Ower* and the *Lemon*, dreaded by mariners, and numbers of others infamous for shipwrecks. The channel between the *Dogger Bank* and the *Well Bank* deepens even to forty fathoms. This hollow is called the *Silver Pits*, and is noted for the cod-fishery which supplies the *London* markets. The cod-fish love the deeps: the flat-fish the shallows. I will not repeat what I have, in another place, so amply treated of*. I must only lament, that the fisheries of this bank are only subservient to the purposes of luxury. Was (according to the plan of my humane friend, Mr. *Travis* of *Scarborough*) a canal formed from any part of the neighboring coast to that at *Leeds*, thousands of manufacturers would receive a cheap and wholesome food; insurrections in times of scarcity of grain be prevented; our manufactures worked at an easy rate; our rivals in trade thereby underfold; and, in defiance of the probably approaching decrease of the *Newfoundland* fishery (since the loss of *America*) contribute to form a nursery of seamen sufficient to preserve the small remnant we have left of respect from foreign nations.

I have, to the best of my abilities, enumerated the *British* fish, in the third volume of the *British Zoology*. The *Faunula* which I have prefixed to Mr. *Lightfoot's Flora Scotica*, contains those which frequent the northern coasts of *Great Britain*; in which will be found wanting many of those of *South Britain*. The Reverend Mr. *LIGHTFOOT*, in that work, hath given a most elaborate account of the submarine plants of our northern sea.

CALEDONIAN OCEAN.

I will now pursue my voyage from the extreme shores of *North Britain* through a new ocean. Here commences the *Oceanus Caledonius*, or *Deucalionius*, of *Ptolemy*; a vast expanse, extending to the west as far as *Greenland*, and northward to the extreme north. This I should call the *NORTHERN OCEAN*, distinguishing its parts by other names suitable to the coasts. From *Dungsbj Head* the *Orkney* islands

* See *Br. Zool.* iii. Articles *Haddock*, *Ling*, and *Turbot*.

* appear spreading along the horizon, and yield a most charming prospect. Some of them are so near as distinctly to exhibit the rocky fronts of those bold promontories which sustain the weight of the vast currents from the *Atlantic*. Others shew more faint: their distances finely expressed as they retire from the eye, until the mountains of the more remote have scarcely a deeper azure than the sky, and are hardly discernible rising over the surface of the ocean *.

Between these and the main land, about two miles from the *Cathness* shore, lies *Stroma*, the *Ocetis* of *Ptolemy*, a little island, an appertenance to that county, fertile by the manual labor of about thirty families; pleasant, and lofty enough for the resort of the Auk tribe. The noted mummies are now lost, occasioned by the doors of the caverns in which they were deposited being broken down, and admission given to cattle, which have trampled them to pieces. This catacomb stands on a neck of land bounded by the sea on three sides. The salt air and spray expels all insects, and is the only preservation the bodies have; some of which had been lodged here a great number of years. In many of the isles, the inhabitants use no other method for preserving their meat from putrefaction than hanging it in caves of the sea, and the method is vindicated by the success.

This island lies in the *Pentland Firth*, noted for the violence of the tides; tremendous to the sight, but dangerous only when passed at improper times. They set in from the north-west: the flood, on the contrary, on the coasts of *Lewis*, pours in from the south †. The tide of flood upon *Stroma* (and other islands similarly situated in mid-stream) divides or splits before it reaches it. A current runs with great violence on both sides, then unites, at some distance from the opposite end, and forms a single current, running at spring-tides at the rate of nine knots an hour; at neap, at that of three only. The space between the dividing tides, at different ends of an island, is quite stagnant, and is called the eddy. Some of them are a mile or two long, and give room for a ship to tack to and fro, till the tides are so far spent as to permit it to pursue its voyage.

The most boisterous parts of the streams are at the extremities of the island, and a little beyond the top of the eddy, where they unite. The collision of these opposite streams excite a circular motion, and, when the tide is very strong, occasion whirlpools in form of an inverted bell, the largest diameter of which may be about three feet. In spring-tides they have force enough to turn a vessel round, but not to do any damage: but there have been instances of small boats being swallowed up. These whirlpools are largest when first formed; are carried away with the stream, and disappear, but are quickly followed by others. The spiral motion or suction

ORKNEY
ISLANDS.

STROMA.

TIDES.

THE SWELCHIE
OF STROMA.

* Mr. *Cordiner*'s elegant description, p. 85.

† *Mackenzie's Charts of the Orkneys*, p. 4, 5,

does

does not extend far beyond the cavity: a boat may pass within twenty yards of these whirlpools with safety. Fishermen who happen to find themselves within a dangerous distance, fling in an oar, or any bulky body, which breaks the continuity of the surface, and interrupts the vertiginous motion, and forces the water to rush suddenly in on all sides and fill up the cavity. In stormy weather, the waves themselves destroy this phenomenon. A sunk rock near the concourse of these rapid tides occasions a most dreadful appearance. The stream meeting with an interruption, falls over with great violence, reaches the bottom, and brings up with it sand, shells, fishes, or whatsoever else it meets with; which, with boats, or whatsoever it happens to meet, is whirled from the centre of the eruption towards the circumference with amazing velocity, and the troubled surface boils and bubbles like a great cauldron, then darts off with a succession of whirlpools from successive ebullitions. These are called *Roafts*, and are attended with the utmost danger to small boats, which are agitated to such a degree, that (even should they not be overfet) the men are flung out of them, to perish without any chance of redemption. It is during the ebb that they are tremendous, and most so in that of a spring-tide with a west wind, and that in the calmest weather; for during flood they are passed with the greatest safety. Vessels in a calm are never in danger of touching on an island or visible rock, when they get into a current, but are always carried safe from all danger.

ROASTS.

SWONA.

DEPTH OF
WATER.

TIDES.

Swona, a little island, the most southern of the *Orknies*, is about four miles beyond *Stroma*, and is noted for its tremendous streams, and in particular the whirlpools called the *Wells* of *Swona*, which in a higher degree exhibit all the appearances of the former. What contributes to encrease the rage of the tides, besides their confinement between so many islands, is the irregular position of the sounds, and their little depth of water. The same shallowness extends to every side of the *Orknies*; an evidence that they had once been part of the mother isle, rent from it by some mighty convulsion. The middle of the channel, between *Stroma* and the main land, has only ten fathom water: the greatest depth around that island is only eighteen. The sounds are from three to forty-six fathom deep: the greater depths are between *South Ronaldsha* and *South Wales*; for in general the other sounds are only from three to thirteen; and the circumambient depth of the whole group very rarely exceeds twenty-five.

About these islands commences a decrease of the tides. They lie in a great ocean, in which the waters have room to expand; therefore never experience that height of flood which is constant in the contracted seas. Here ordinary spring-tides do not exceed eight feet; and very extraordinary spring-tides fourteen, even when acted on by the violence of the winds*.

* *Murdoch Mackenzie.*

The

The time of the discovery and population of the *Orknies* is unknown. Probably it was very early; for we are told that they owe their name to the *Greeks*.

Orcades has memorant dictas a nomine *Græco* *.

Mela and *Pliny* take notice of them; and the last describes their number and clustered form with much accuracy †. The fleet of *Agricola* sailed round them, and made a conquest of them; but the *Romans* probably never retained any part of *Caledonia*. I found no marks of them beyond *Orrea* or *Inchtuthel* ‡, excepting at *Fortingal* § in *Breadalbine*, where there is a small camp, possibly no more than a temporary advanced post. Notwithstanding this, they must have had, by means of shipping, a communicated knowledge of the coasts of *North Britain* even to the *Orcades*. *Ptolemy* hath, from information collected by those means, given the names of every nation, considerable river, and head-land, on the eastern, northern, and western coast. But the *Romans* had forgotten the navigation of these seas, otherwise the poet would never have celebrated the courage of his countrymen, in sailing in pursuit of the plundering *Saxons* through *unknown streights*, and a naval victory obtained off these islands by the forces sent to the relief of the distressed *Britons* by *Honorius*.

Quid Sidera profunt?

Ignotumque fretum? Maduerunt *Saxone* fuso
Orcades §.

The *Orkney* isles in after times became possessed by the *Picts*; and again by the *Scots*. The latter gave way to the *Norwegian* pirates, who were subdued by *Harold Harfargre* about the year 875 ¶, and the islands united to the crown of *Norway*. They remained under the *Norwegians* till the year 1263, accepted their laws, and used their language. The *Norse*, or *Norwegian* language was generally used in the *Orkney* and *Schetland* islands even to the last century: but, except in *Foula*, where a few words are still known by the aged people, it is quite lost. The *English* tongue, with a *Norwegian* accent, is that of the islands; but the appearance of the people, their manners and genius, evidently shew their northern origin. The islands vary in their form and height. Great part of *Hoy* is mountainous and lofty. The noted land-mark, the hill of *Hoy*, is said to be five hundred and forty yards high. The sides of all these hills are covered with long heath, in which breed multitudes of *Curlews*, *Green Plovers*, *Redshanks*, and other *Waders*. The *Short-eared Owl* is also very frequent here, and nestles in the ground. It is

LANGUAGE.

ROCKS OF THE
ORKNIES.

* *Claudian*..

† *Mela*, lib. iii. c. 6. *Plin.* lib. iv. c. 16.

‡ *Tour Scott.* 1772. p. 70.

§ Same p. 25.

§ *Claudian*, de iv. Conf. *Honorii*.

¶ *Torfaus Rer. Orcad.* lib. i. c. 3. p. 10.

BIRDS.

probable that it is from hence, as well as from *Norway*, that it migrates, in the beginning of winter, to the more southern parts of *Britain*. Most of the Waders migrate; but they must receive considerable reinforcements from the most distant parts of the north, to fill the numbers which cover our shores. The cliffs are of a most stupendous height, and quite mural to the very sea. The *Berry Head* is an exalted precipice, with an august cave at the bottom, opening into the sea. The *Ern* Eagles possess, by distant pairs, the upper part of the rocks: neither these nor any other Falcons will bear society; but, as *Pliny* elegantly expresses it, *Adultos persequitur parens et longè fugat, æmulos scilicet rapinæ. Et alioquin unum par aquilarum magno ad populandum tractu, ut satietur, indiget* *. Auks, Corvorants, and all the tribes which love exalted situations, breed by thousands in the other parts. The *Tyste*, or Black Guillemot, N° 236, secures itself in a crack in the rock, or by scraping a burrow in the little earth it may find; there it lays a single egg, of a dirty olive blotched with a darker. This species never migrates from the *Orkneys*. The Foolish Guillemot, N° 436, continues till *November*. The Little Auk, N° 429, a rare bird in other parts of *Britain*, breeds in the holes of the lofty precipices. And the *Lyre*, or the Sheerwater, N° 462, burrows in the earth among the rocks of *Hoy* and *Eda*, and forms an article of commerce with its feathers, and of food with its flesh, which is salted and kept for the provision of the winter. In that season they are seen skimming the ocean at most surprizing distances from land. The Stormy Petrel, N° 464, breeds frequently among the loose stones; then takes to sea and affrights the superstitious sailor with its appearance. Woodcocks scarcely ever appear here. Fieldfares make this a short baiting-place: and the Snow Bunting, N° 122, often alights and covers whole tracts of country, driven by the frost from the farthest north.

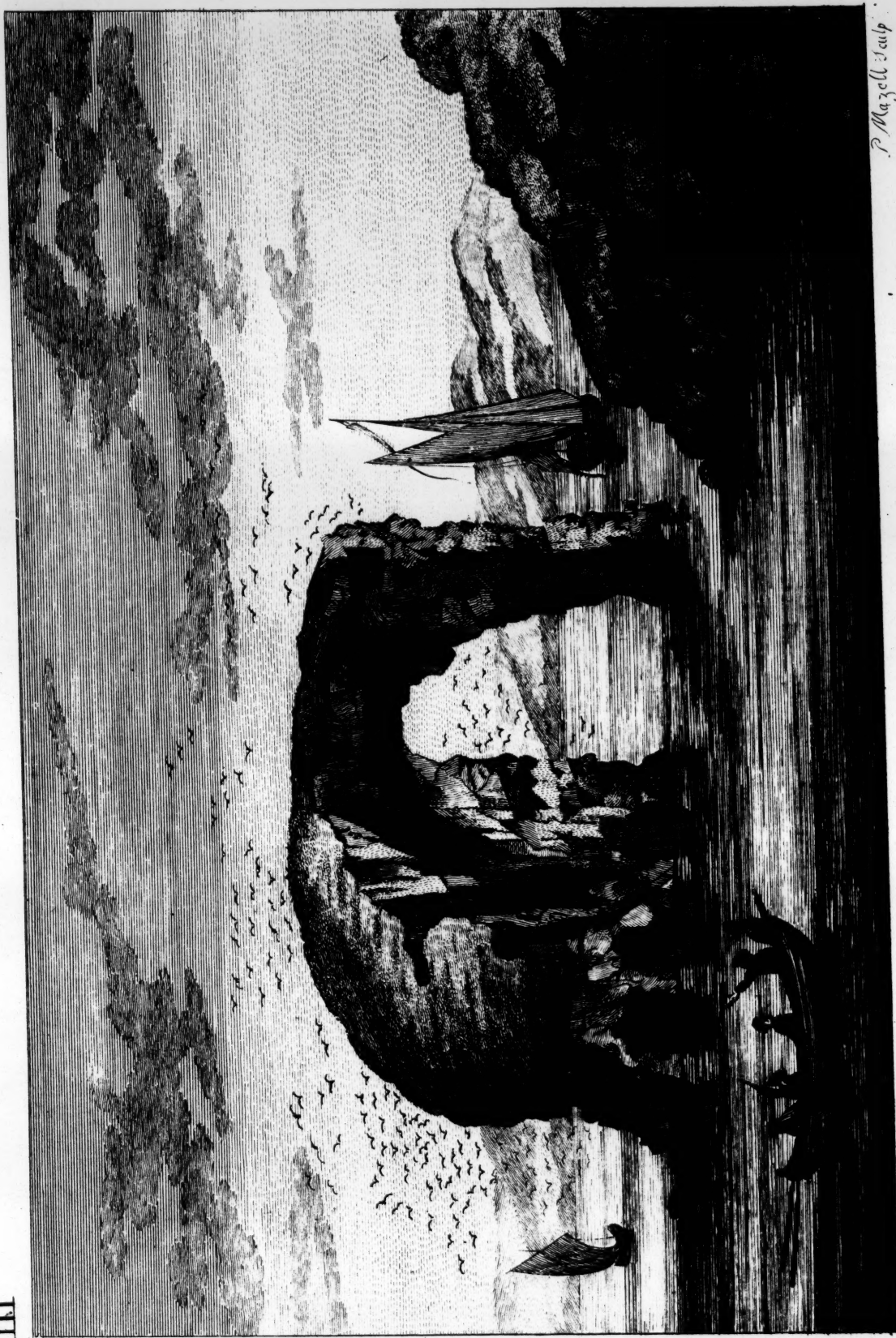
A few Wild Swans breed in some lochs in *Mainland*; but the greatest part of these birds, all the Bernacles, Brent Geese, and several other palmated birds, retire in the spring to more northern latitudes. But to the Swallow-tailed Duck, the Pintail, and a few others, this is a warm climate; for they retire here to pass their winters in the sheltered bays. Any other remarks may be intermixed with those on *Schetland*; for there is great familiarity of subjects in both the groups.

FAIR ISLE.

The last lie about sixty miles to the north-east of the most northern *Orkney*. Midway is *Fair Island*, a spot about three miles long, with high and rocky shores, inhabited by about a hundred and seventy people: an industrious race; the men fishers; the women knitters and spinners. The depth of water round varies to twenty-six fathoms. The tide divides at the north end, runs with great velocity, and forms on the east side a considerable eddy.

* *Hist. Nat. lib. x. c. 3.*





P. Mazzei sculp.

Low price

The DOREHOLM.

S C H E T L A N D.

XXVII

SCHETLAND.

Schetland consists of several islands. *Mainland*, the principal, extends from south to north twenty-eight leagues, and is most singularly formed; consisting of an infinite number of *peninsulæ* connected by very narrow isthmuses. That called *Mavisgrind*, which unites the parish of *North Mæven*, is only eighty yards broad. But the irregular shape of this island occasions it to abound with the finest and most secure ports, called here *voes*; a most providential dispensation in a sea which swarms with fishes of the most general use. The adjacent islands are in general so near to the mother island, and their headlands point so exactly to its corresponding capes, that it is highly probable that they once made a part of the *Mainland*. The rocks and stacks assume great variety of forms, such as steeples and Gothic cathedrals rising out of the water, fleets of ships, and other fancied shapes. The *Doreholm*, in the parish of *North Mæven*, is very singular: part is rounded, the rest seems a ruin, composed of a single thin fragment of rock, with a magnificent arch within, seventy feet in height.

To use the words of Captain *Thomas Preston*, to whom we are indebted for an excellent chart of this group, 'the land is wild, barren, and mountainous; nor is there so much as a bush or a tree to be seen. The shores are difficult, and in many parts inaccessible; rude, steep, and iron-like; the sight of which strikes the mind with dread and horror; and such monstrous precipices and hideous rocks as bring all *Brobdignag* before your thoughts. These islands lie between lat. 60 to 61. In winter the sun sets soon after it rises, and in summer rises soon after it sets; so that in that season the nights are almost as light as the day; as on the contrary, in *December* the day is nearly as dark as the night. About the solstice, we see every night the *aurora borealis*, or, as they are called by the natives, the *merry dancers*, which spread a broad glaring appearance over the whole northern hemisphere*.'

They are the constant attendants of the clear evenings in all these northern islands, and prove great reliefs amidst the gloom of the long winter nights. They commonly appear at twilight near the horizon, of a dun color, approaching to yellow: sometimes continuing in that state for several hours without any sensible motion; after which they break out into streams of stronger light, spreading into columns, and altering slowly into ten thousand different shapes, varying their colors from all the tints of yellow to the obscurest russet. They often cover the whole hemisphere, and then make the most brilliant appearance. Their motions at these times are most amazingly quick; and they astonish the spectator with the rapid change of their form. They break out in places where none were seen before, skimming

AURORA BORE-
ALIS.

* *Phil. Trans. abr. xi. 1322.*

briskly along the heavens: are suddenly extinguished, and leave behind an uniform dusky tract. This again is brilliantly illuminated in the same manner, and as suddenly left a dull blank. In certain nights they assume the appearance of vast columns, on one side of the deepest yellow, on the other declining away till it becomes undistinguished from the sky. They have generally a strong tremulous motion from end to end, which continues till the whole vanishes. In a word, we, who only see the extremities of these northern phenomena, have but a faint idea of their splendor, and their motions. According to the state of the atmosphere they differ in colors. They often put on the color of blood, and make a most dreadful appearance. The rustic sages become prophetic, and terrify the gazing spectators with the dread of war, pestilence, and famine. This superstition was not peculiar to the northern islands; nor are these appearances of recent date. The ancients called them *Chasmata*, and *Trabes*, and *Bolides*, according to their forms or colors*. In old times they were extremely rare, and on that account were the more taken notice of. From the days of *Plutarch* to those of our sage historian Sir *Richard Baker*, they were supposed to have been portentous of great events: and timid imagination shaped them into aerial conflicts.

Pierce fiery warriors fight upon the clouds
In ranks and squadrons and right form of war.

After, I suppose, a very long intermission, they appeared with great brilliancy in England, on *March 6th, 1715-16*. The philosophers paid a proper attention†. The vulgar considered them as marking the introduction of a foreign race of princes. The novelty is now ceased, and their cause perhaps properly attributed to the greater abundance of electrical matter.

STORMS.

HERRINGS.

The tempests which reign over these islands during winter is astonishing. The cold is moderate; the fogs great and frequent; but the storms agitate the water even to the bottom of these comparatively shallow seas. The fish seek the bottom of the great deeps: and the Herrings, which appear off the *Schetlands* in amazing columns in *June*, perform the circuit of our island, and retire beyond the knowledge of man. When the main body of these fish approaches from the north, it alters the very appearance of the ocean. It is divided into columns of five or six miles in length, and three or four in breadth, and they drive the water before them with a sort of rippling current. Sometimes they sink for a small space, then rise again; and in bright weather reflect a variety of splendid colors, like a field of most

* *Aristol. Meteorolog. lib. i. c. 5. Plin. Nat. Hist. lib. ii. c. 26.*

† See various accounts of them in the *Phil. Trans. abr. iv. part ii. 138.*

precious gems. Birds and fish of prey attend and mark their progress. The Whales of several kinds keep on the outside, and, deliberately opening their vast mouths, take them in by hundreds. Gannets and Gulls dart down upon them; and the diving tribe aid their persecution, with the cetaceous fishes*. Mankind joins in the chase; for this useful species gives food to millions, mediately and immediately. *Dutch, French, Flemings, Danes, and English*, rendezvous in *Brassa* sound to meet these treasures of the ocean: and return to distribute their booty even to the distant *Antillas*.

Cod, Ling, and *Torsk*†, furnish cargoes to other adventurers. I wish I could speak with the same satisfaction of this as of the free fishery of the Herring; but in these distant islands, the hand of oppression reigns uncontrolled. The poor vassals (in defiance of laws still kept in bondage) are compelled to slave, and hazard their lives in the capture, to deliver their fish to their lords for a trifling sum, who sell them to adventurers from different parts at a high price.

Among other scarcer fishes the Opah, *Br. Zool. iii. N° 101.* is found in abundance. It seems a fish of the north as well as the *Torsk*; the last is not found south of the *Orknies*; the former extends even to the banks of *Newfoundland*.

The birds of these islands are the same with those of the *Orknies*, except the Skua, p. 531, which breeds only in *Equla* and *Unst*. Among the few land-birds which migrate to them in summer, is the Golden-crested Wren, N° 153. Its shortest flight must be sixty miles, except it should rest midway on *Fair island*; a surprising flight for so diminutive a bird!

Multitudes of the inhabitants of each cluster of islands feed, during the season, on the eggs of the birds of the cliffs. The method of taking them is so very hazardous, as to satisfy one of the extremity to which the poor people are driven for want of food. *Capinsha, Hunda, Hoy, Foula, and Nosi head*, are the most celebrated rocks; and the neighboring natives the most expert climbers and adventurers after the game of the precipice. The height of some is above fifty fathoms; their faces roughened with shelves or ledges, sufficient only for the birds to rest and lay their eggs. To these the dauntless fowlers will ascend, pass intrepidly from one to the other, collect the eggs and birds, and descend with the same indifference. In most places, the attempt is made from above: they are lowered from the slope contiguous to the brink, by a rope, sometimes made of straw, sometimes of the bristles of the hog: they prefer the last, even to ropes of hemp, as it is not liable to be cut by the sharpness of the rocks; the former is apt to untwist. They trust themselves to a single assistant, who lets his companion down, and holds the rope, depending on his strength alone; which

COD-FISH.

OPAH.

BIRDS.

FOWLING.

* See my *Voy. to the Hebrides*, and *Br. Zool. iii.* for the history of the Herring. † *Br. Zool. iii. N° 89.*

often,

often fails, and the adventurer is sure to be dashed to pieces, or drowned in the subjacent sea. The rope is often shifted from place to place, with the impending weight of the fowler and his booty. The person above receives signals for the purpose, his associate being far out of sight; who, during the operation, by help of a staff, springs from the face of the rocks, to avoid injury from the projecting parts.

In *Foula*, they will trust to a small stake driven into the ground, or to a small dagger, which the natives usually carry about them; and which they will stick into the ground, and, twisting round it a fishing cord, descend by that to climbing places, and, after finishing their business, swarm up by it without fear. Few who make a practice of this come to a natural death. They have a common saying, 'Such a one's *Gutcher* went over the *Sneak*; and my father went over the *Sneak* too.' It is a pity that the old *Norwegian* law was not here in force. It considered this kind of death as a species of suicide. The next of kin (in case the body could be seen) was directed to go the same way; if he refused, the corpse was not to be admitted into holy ground *.

But the most singular species of fowling is on the holm of *Nefs*, a vast rock severed from the isle of *Nefs* by some unknown convulsion, and only about sixteen fathoms distant. It is of the same stupendous height as the opposite precipice †, with a raging sea between; so that the intervening chasm is of matchless horror. Some adventurous climber has reached the rock in a boat, gained the height, and fastened several stakes on the small portion of earth which is to be found on the top: correspondent stakes are placed on the edge of the correspondent cliffs. A rope is fixed to the stakes on both sides, along which a machine, called a cradle, is contrived to slide; and, by the help of a small parallel cord fastened in like manner, the adventurer wafts himself over, and returns with his booty, which is the eggs or young of the Black-backed Gull, N° 451, and the Herring Gull, N° 452.

QUADRUPEDS.

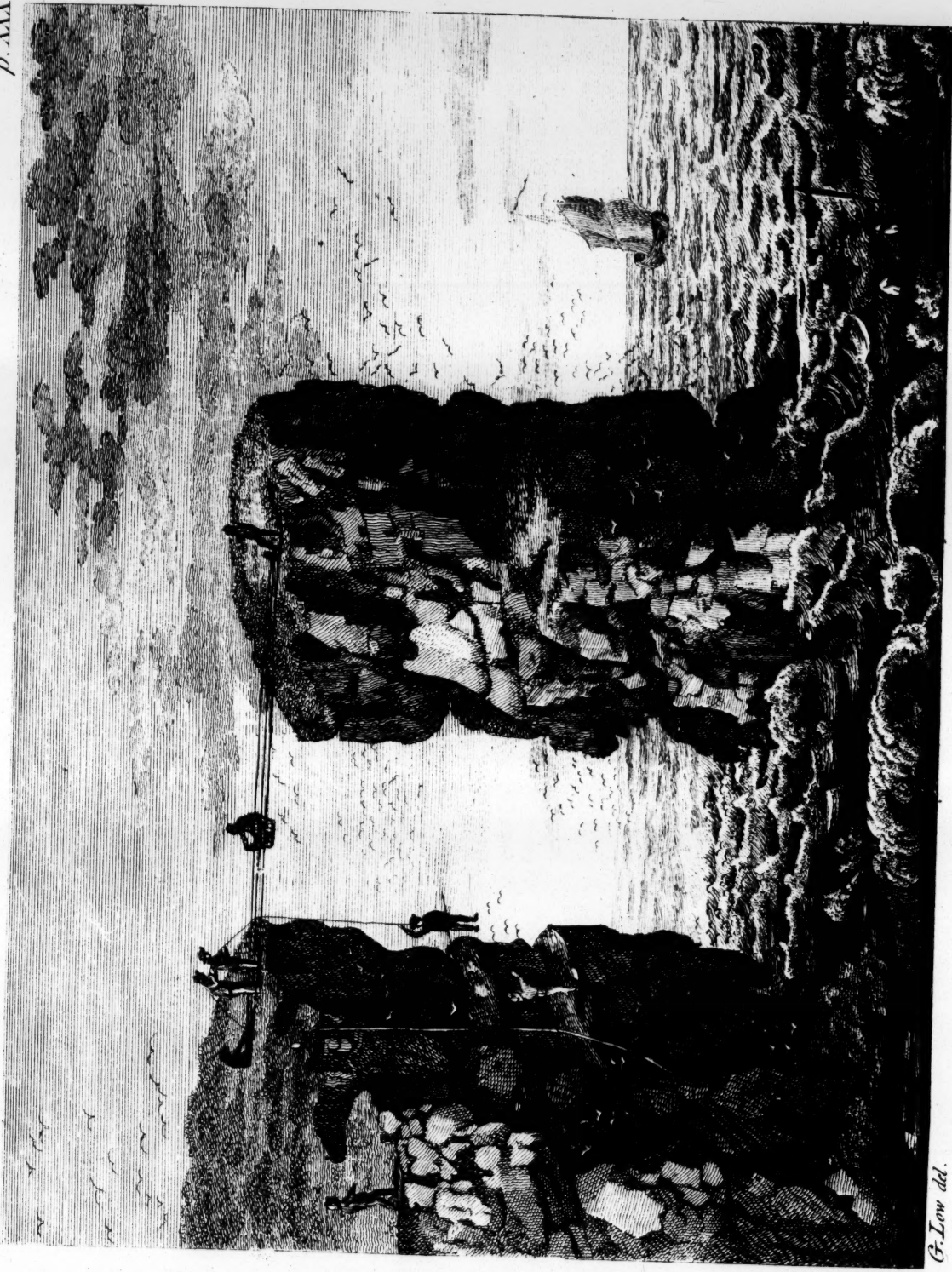
The number of wild Quadrupeds which have reached the *Orkney* and *Schotland* islands are only five; the Otter, Brown Rat, Common Mouse, Fetid Shrew, and Bat. Rabbits are not of *British* origin, but naturalized in every part. In the sandy isles of *Orkney*, they are found in myriads, and their skins are a great article of commerce; but the injury they do in setting the unstable soil in motion, greatly counter-vales the profit.

THESE ISLES ONCE
WOODED.

In many parts of these islands are evident marks of their having been a wooded country. In the parish of *St. Andrew* in the *Orkneys*, in *North Maben*, and even in *Foula* in the *Schotland*s, often large tracts are discovered filled with the remains of large trees, which are usually found after some violent tempest hath

* *Dobes, Hist. Ferroe Isles*, 154.

† 480 feet.

*G. Low del.**P. Mazell sc.*

BIRD CATCHING at ORKNEY.



blown away the incumbent strata of sand or gravel with which they have been covered. They are lodged in a morassy ground, and often ten feet beneath the peat. Some stand in the position in which they grew; others lie horizontally, and all the same way, as if they had either been blown down, or overturned by a partial deluge. Yet at present no kind of wood can be made to grow; and even the lowest and most common shrub is cultivated with the greatest difficulty. The hazel, the herbaceous, reticulated, creeping, and common willow, are the only shrubs of the island, and those are scattered with a sparing hand. I shall, in another place, consider the decrease of vegetation in this northern progress.

The great quantity of turf which Providence hath bestowed on all these islands, excepting *Sanda*, is another proof of the abundance of trees and other vegetables, long since lost from the surface. The application of this *humus vegetabilis* for the purpose of fuel, is said to have been first taught the natives by *Einar*, a *Norwegian*, surnamed, from that circumstance, *Torf-einar*, *Einar de Cespite* *. Had he lived in *Greece*, he could not have escaped deification for so useful a discovery.

Before I quit the last of *British* isles, I shall, as supplemental to the antiquities mentioned in my *Tours in Scotland*, give a brief account of others found in these groups. ANTIQUITIES.

The *Orkneys*, the *Schetlands*, *Cathness*, *Sutherland*, and *Ross-shire*, with the *Hebrides*, were, for centuries, possessed by the *Norwegians*; and, in many instances, they adopted their customs. Of the antient monuments still remaining, several are common to *Scandinavia* and the old inhabitants of *Britain*: others seem peculiar to their northern conquerors. Among those are the circular buildings, known by the names of *Pictish* houses, *Burghs*, and *Duns*: the first are of modern date, and to be exploded, as they never were the work of the *Picts*; the second are assuredly right, and point out the founders, who at the same time bestowed on them their natal name of *Borg*, a defence or castle †, a *Sueo-Gothic* word; and the *Highlanders* universally apply to these places the *Celtic* name *Dun*, signifying a hill defended by a tower ‡. This also furnishes the proof of their use, was there no other to be discovered. They are confined to the counties once subject to the crown of *Norway*. With few exceptions, they are built within sight of the sea, and one or more within sight of the other; so that on a signal by fire, by flag, or by trumpet, they could give notice of approaching danger, and yield a mutual succour. In the *Schetland* and *Orkney*

* *Torfaeus* *Res. Oread.* lib. ii. c. 7.

† See *Isre Glossarium Sueo-Gothicum*, where the word is defined, *munimentum*, derived from *Berga custodire*, or *Byrgia claudire*.

‡ *Baxter*.

Gloss. Antiq. Brit. 109.

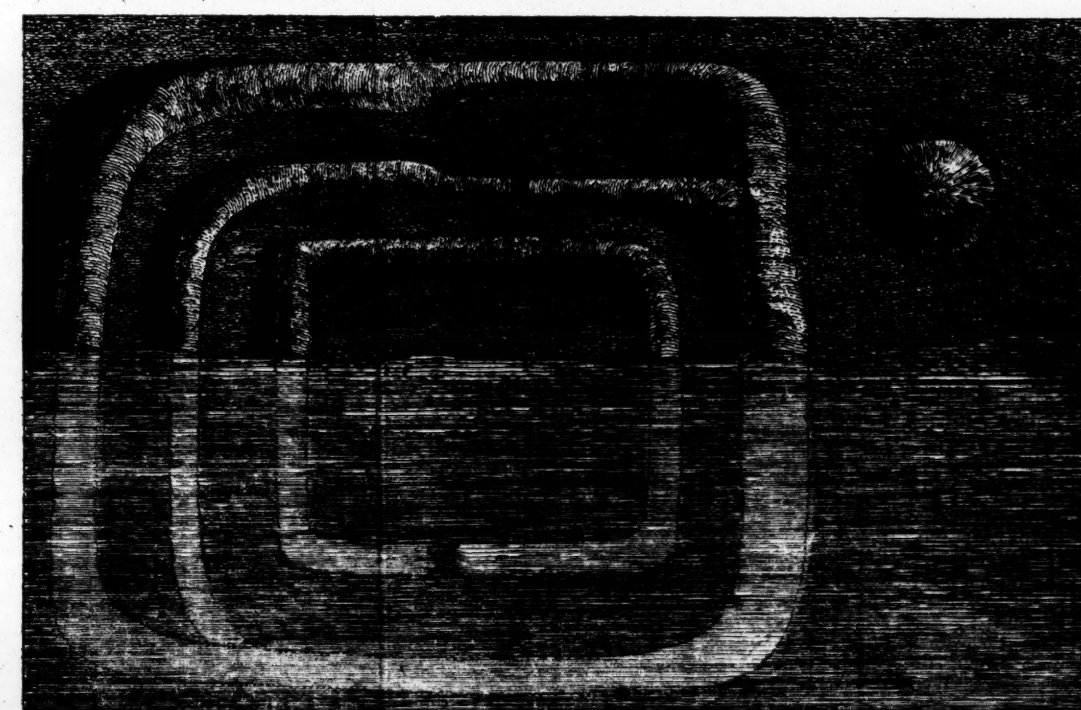
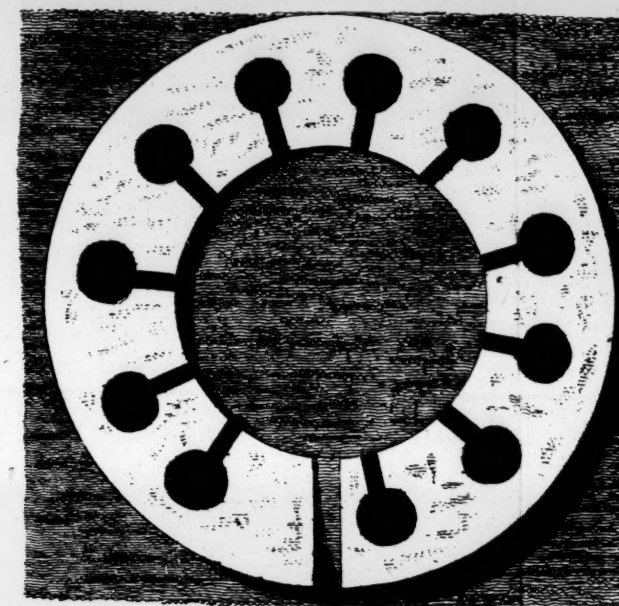
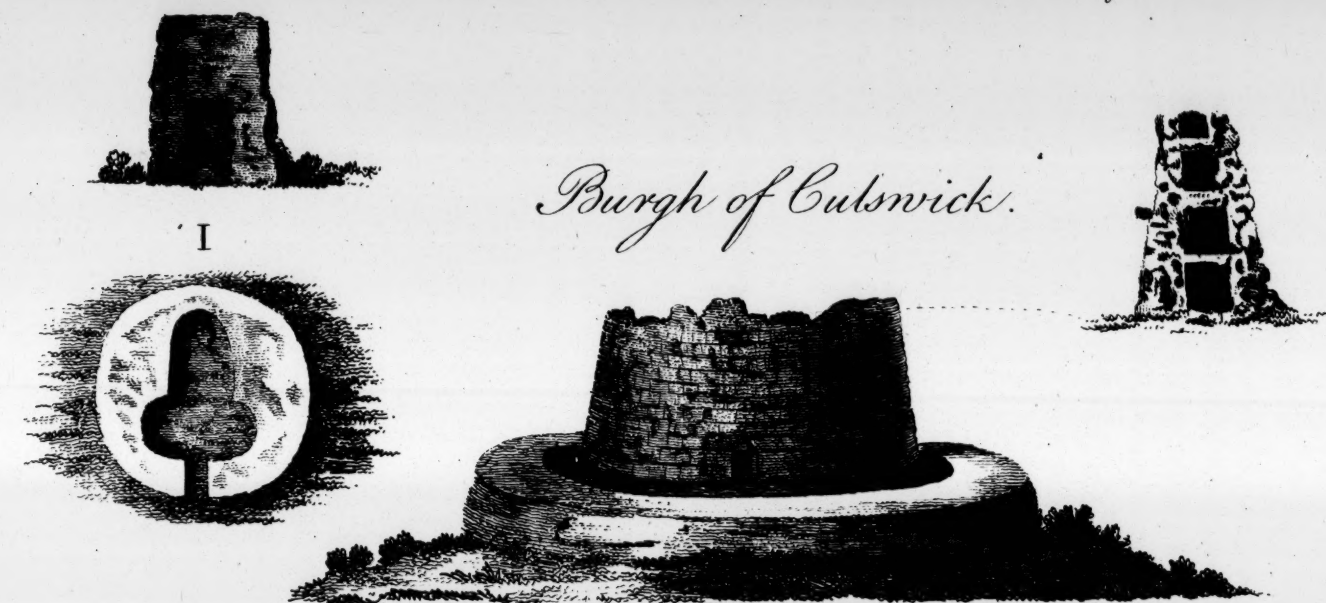
islands,

islands, they are most frequently called *Wart* or *Wardhills*, which shews that they were garrisoned. They had their *wardmadher* *, or watchman, a sort of centinel, who stood on the top, and challenged all who came in sight. The *gackman* † was an officer of the same kind, who not only was on the watch against surprize; but was to give notice if he saw any ships in distress. He was allowed a large horn of generous liquor, which he had always by him, to keep up his spirits ‡. Along the *Orkney* and *Schotland* shores, they almost form a chain; and by that means not only kept the natives in subjection, but were situated commodiously for covering the landing of their countrymen, who were perpetually roving on piratical expeditions. These towers were even made use of as state-prisons; for we learn from *Torfaus*, that after *Sueno* had surprized *Paul*, count of *Cathness*, he carried him into *Sutherland*, and confined him there in a *Norwegian* tower §. So much has been said on this subject by the Reverend Mr. *Cordiner* and myself, that I shall only refer to the pages, after saying, that out of our kingdom, no buildings similar to these are to be found, except in *Scandinavia*. On the mountain *Swalberg* || in *Norway* is one; the *Stir-biskop* ¶, at *Upsal* in *Sweden*, is another; and *Umseborg*, in the same kingdom, is a third **.

These towers vary in their inner structure; but externally are universally the same; yet some have an addition of strength on the outside. The burgh of *Culswick* in *Schotland*, notwithstanding it is built on the top of a hill, is surrounded with a dry ditch thirteen feet broad; that of *Snaburgh* in *Unst*, has both a wet and a dry ditch; the first cut, with great labor, through the live rock. The burgh of *Moura* is surrounded by a wall, now reduced to a heap of stones, and the inside is cylindrical, not taper, as usual with others. The burgh of *Hogfæter*, upon an isle in a loch of the same name, has also its addition of a wall; a peculiarity in a causeway, to join it to the main land, and a singular internal structure. Numbers of little burghs, with single cells, are scattered about these islands, in the neighborhood of the greater; and which probably were built by the poorer sort of people, in order to enjoy their protection. A multitude of places in these islands have the addition of *burgh* to their names, notwithstanding there is not a vestige of a tower near them; the materials having long since been carried away, and applied to various uses. One was, by way of pre-eminence, called *Coningsburgh*, or the *burgh of the king*. I lament its loss the more, as it might have proved similar to its namesake in *Yorkshire*, and furnished additional materials to

* *Ihre Gloss. Sueo-Goth.* 1085. † *Crit. Diff.* by *John Macpherson*, D. D. 325. ‡ *Torfaus Rer. Orcad.* 8. § *Baxter, Gloss. Antiq. Brit.* 109. || Information by letter from Mr. *Subm* of *Copenhagen*. ¶ *Dalbberg*, tab. 64. ** The same, tab. 300.—For more ample accounts, see Mr. *Cordiner's Letters*, 73, 105, 118, and my *Tours in Scotland*.

Antiquities in the ORKNEY & SHETLAND *Isles.*



my worthy friend, *Edward King*, Esq; for his most elaborate history of *English castles* *. The plates, with explanatory accounts, shall supply what farther can elucidate these curious antiquities.

After the expulsion of the *Norwegians*, the coasts of *Scotland*, which they possessed, were still protected by castles; many of which, such as *Oldwick*, exhibit very small improvements on the model left by the antient *Scandinavian* architects: a few deviated from the original manner, were square, had great thickness of wall, furnished with cells like those in the round towers or *burghs*. *Borve* castle, in *Cathness*, is a little more advanced. This was the residence of *Thorkel*, a famous freebooter in the tenth century. It is a small square building, on a rock projecting into the sea, adjoined to the main land by an isthmus not ten feet wide; and beneath the castle is a magnificent passage for boats, which pierces the rock from side to side, and is covered by a matchless natural arch.

BORVE CASTLE.

I cannot but revert to the former subject, to mention the *Snaburgh* in *Tetlor*, one of the most remote of the *Schetland* isles. It is in the form of a *Roman* camp; and when entire, had in the middle a rectangular area surrounded by a wall, and that by an earthen rampart of the same figure, at some distance from it. Two sides of the walled area have the additional defence of another rampart of earth; which commences on the inside of one of the narrower sides, and, preserving the same distance from the lesser area as the two other sides of the outward fence do, terminates at the latter, near an artificial well. That this was *Roman*, I greatly suspect. The care for water was a peculiar object with that wise nation; but neglected by barbarians. This is inclosed within the rampart, and at a small distance on the outside, had the protection of a mount, which once probably had its castellet, garrisoned for the further security †. The regular *portæ* are wanting; in other respects it resembles a *Roman* camp. The sea, over which it impends, has destroyed one half: the entire part is given in the plate, and the rest supplied with dotted lines.

ROMAN CAMP †

I know but of two periods in which the *Romans* visited these islands: one at the time when the fleet of *Agricola* subdued them; the other, when the fleet of *Honorius* defeated the *Saxons* in the seas of *Orkney*. A copper medal of *Vespasian*, with *Judea devicta* † on the reverse, was found on the south side of *Main-land*, probably lost there by the first invaders, who might venerate *Vespasian*, under whom many of them had served, and who might naturally carry with them such honorable memorials of his reign. The only antiquities found near

* See his curious account of *Coningsborough* castle, which he justly compares to the *Scottish Duns*; and judiciously ascribes to it a very early date. *Archæologia*, vi. 234. tab. xxiii.

† *Vegetius de re Milit.* lib. iv. c. 10.

‡ Mr. Low.

this place, were six pieces of brass, cast into a form the nearest resembling fetters. They were wrapped in a piece of raw hide; but we cannot pretend to say that they belonged to the occupiers of the camp.

STONE WEAPONS.

Flint heads of arrows, flint axes, swords made of the bones of a whale, stones, beads, and antiquities, must be referred to the earliest inhabitants, at a period in which these kingdoms were on a level with the natives of new-discovered islands

CIRCLES.

in the *South Sea*. Druidical circles of stones, the temples of primæval religion of our island, are not uncommon. The finest and most entire are those at *Stennis*, in one of the *Orkney* isles. The diameter of the circle is about a hundred and ten yards. The highest stone fourteen feet. The whole is singularly surrounded with a broad and deep ditch, probably to keep at a distance the unhallowed vulgar.

SEMICIRCLES.

At the same place is a noble semicircle, consisting of four vast stones entire, and one broken. The highest are twenty feet high above ground. Behind them is a mound of earth, conformable to their position. If there never was a number of stones to complete a circle, this antiquity was one of the kind which the learned Doctor *Borlase* calls a theatre, and supposes was designed for the exhibition of dramatical performances*. I suspect them to have been either for the purposes of religion, or judicial transactions; for the age was probably not sufficiently refined for the former amusements. Upright stones, either memorials of

PLAIN COLUMNS.

the dead, or victories obtained on the spot, are very numerous. The most remarkable is the stone of *Sator*, in the isle of *Eda*. It is a flag, fifteen feet high, five and a half broad, and only nine inches thick. Its story is quite unknown; but it probably rests over a hero of that name. Notwithstanding the long residence of the *Norwegians* in these islands, I find only one stone with a *Runic* inscription, which runs along the sides. The rest of the stone is plain, and destitute of the sculptures so frequent on those found in *Scandinavia*.

SCULPTURED COLUMNS.

In the wall of the church at *Sandness*, is a stone with three circles, a semicircle, and a square figure, engraven on it. This is the only one which bears any resemblance to the elegant carved columns at *Meigle* and *Glamis*, and which extend, after a very long interval, as far as the church-yard of *Far*, on the extreme northern coast of *Gathness*. Several of these have been before attended to. I can only remark, that they are extremely local, and were, by their similarity, only the work of a short period. We imagine that the first, about which we can form any conjecture, was erected in 994, on the defeat of *Canus*, the *Dane*: the last in 1034, on the murder of *Malcolm* the Second.

* *Antiq. Cornwall*, 195.

In the isle of *Unst* are two singular circles, near each other. The largest is fifty feet in diameter, to the outmost ring; for it consists of three, concentric; the outmost is formed of small stones, the two inner of earth; through all of which is a single narrow entrance to a tumulus which rises in the centre. The other circle is only twenty-two feet in diameter, and has only two rings, formed of earth: in the centre is a barrow, the sides of which are fenced with stones. No marks of their having been places of interment have been found, yet most probably that was their use.

SEPULCHRAL
ANTIQUITIES.

CIRCULAR.

The links or sands of *Skail*, in *Sandwich*, one of the *Orknies*, abound in round barrows. Some are formed of earth alone, others of stone covered with earth. In the former was found a coffin, made of six flat stones. They are too short to receive a body at full length: the skeletons found in them lie with the knees pressed to the breast, and the legs doubled along the thighs. A bag, made of rushes, has been found at the feet of some of these skeletons, containing the bones, most probably, of another of the family. In one were to be seen multitudes of small beetles. Whether they were placed there by design, or lodged there by accident, I will not determine; but, as I have discovered similar insects in the bag which inclosed the sacred *Ibis*, we may suppose that the *Egyptians*, and the nation to whom these tumuli did belong, might have had the same superstition respecting them. On some of the corpses interred in this island, the mode of burning was observed. The ashes, deposited in an urn which was covered on the top with a flat stone, have been found in the cell of one of the barrows. This coffin or cell was placed on the ground, then covered with a heap of stones, and that again cased with earth and sods. Both barrow and contents evince them to be of a different age from the former. These tumuli were in the nature of family vaults: in them have been found two tiers of coffins*. It is probable, that on the death of any one of the family, the tumulus was opened, and the body interred near its kindred bones.

BARROWS.

The violence of the winds have, by blowing away the sands in a certain part of *Westra*, one of the *Schettlands*, discovered an extensive burying-place, once covered with the thickness of twenty feet. This seems to have belonged to different nations. One is marked by the tumuli consisting of stones and rubbish; some rounded, others flat at top like truncated cones. Near them are multitudes of graves, which are discoverable only by one, two, three, four, and sometimes even more short upright stones, set in the level sand. The corpse was interred a few feet deep, and covered with a layer of fine clay, to keep the sand from touching it.

GRAVES OF
WESTRA.

* See Mr. Low's account, and plate, *Archæologia*, iii. 276. tab. xiii.

Not only human bones, but those of oxen, horses, dogs, and sheep, have been found in these graves. Besides, were several sorts of warlike instruments, battle-axes, two-handed swords, broad swords, brazen daggers and scull-caps, and swords made of the bones of the whale: knives and combs: beads, brotches, and chains of ornament: a metal spoon, and a neat glass cup greatly corroded: small flat circular pieces of marble: stones shaped like whetstones, and spherical stones perforated, such as were in former use in *Scotland* for turning of spindles: but the most singular thing was a thigh-bone closely incircled by a ring of gold. The tumuli seem to have been the places of sepulture of the inhabitants of the isles: the graves, those of some foreign nation who had landed here, had a conflict, and proved victorious. I found my conjecture on the arms and other matters found in them. The brass were *Norwegian* *, the iron belonging to the natives; but the weapons of conquerors and conquered were, with ceremonies resembling those at the funeral of *Pallas*, flung into the graves of the victorious party.

Hinc alii spolia oecidis direpta *Latinis*
 Conjiciunt igni, galeas ensesque decoros,
 Frenaque, ferventesque rotas; pars munera nota,
 Ipsorum clypeos; et non felicia tela:
 Multa bouum circa mastantur corpora morti.

IN SCANDINAVIA.

The antiquities of this class found in *Scandinavia* are very numerous, and of a magnitude which evince the extreme population of the country. I discover only three kinds. The first may be exemplified in the vast rounded earthen tumulus in *Smaland*, with a rude monumental upright stone at top; and near it a spherical stone, beautifully carved, flung up in honor of *Ingo* King of *Sweden*, in the latter end of the ninth century †: others in honor of *Humblus*, and *Laudur* brother to King *Angantyr*; the last surrounded at its base with a circle of rude stones ‡. The *Rambora Rolle* is a mount of earth, with three upright pillars, placed so as to form a triangular space ||. Other tumuli consist entirely of vast heaps of stones. Several of the sepulchral memorials are formed of stones disposed in a circular form: some of low stones, like that of the *Danish* King *Harald Hyldeland*, placed round the edge of the flat area of a low mount. He was slain in battle by *Ringo* King of *Sweden* §, who paid him all funeral honors, burnt his body with great pomp, and placed around his tumulus the numerous bodies of his faithful followers who were slain around their prince; and their places of rest are marked by multitudes of small earthen barrows, with a single stone at the top of each. On

* *Wormii Mon. Dan.* 50. *Dalbberg Suecia Antiqua, et Hodierna*, tab. 314. † *Dalbberg Suecia Antiqua*, tab. 322. ‡ The same, 315. || The same, 323. § *Saxo Gramm.* 147.

the regal mount is a flat stone, with five hollows in it, basins to receive the blood of the victims *. Others consist of small stones with *Maen-hirion*, as the *Welsh* style them, lofty rude pillars, intermixed. In some the lesser stones depart from the circular form, are oval or oblong: their edges are often contiguous, and those parts are often marked with a lofty pillar †. Two pillars are sometimes found, with an enormous stone set from top to top, so as to form the resemblance of a gateway ‡. Columns of great height are also found, surrounded at their base with two circles of small stones ¶. Finally, the stones are disposed so as to form wedges, squares, long rows, as well as circles. The first denoted that armies of foot and horse had prevailed: the second, troops of warriors: the third, duels of champions: and the last, the burials of families §. Multitudes of single obelisks are scattered over the country: some quite plain; others inscribed with *Runic* characters, memorial of the dead, intermixed with well-fancied ornaments ||.

In many of the *tumuli* are found the weapons and other matters which had been deposited with the burnt bones of the deceased. In those of the earliest ages are the stone weapons, such as axes and spears heads made of flint. In others have been met with a small lamp, a key, and swords of brass of the same form with some of the *Roman* swords **. A superstition attending the swords was singular: those of highest temper were supposed to have been made by *Duergi*, dwarfs or fairies, and were thought to have been irresistible. The reader will not be displeased with the elegant version †† of a *Runic* poem, describing the incantations of a fair heroine, to obtain the magical sword out of the tomb of her deceased father.

The *Runic* INVOCATION of HERVOR, the Daughter of ANGANTYR,

Who demands, at her Father's Tomb, a certain Sword,
called *Tirfing*, which was buried with him.

HERVOR.

Awake, <i>Angantyr</i> ! To thy tomb,	<i>Tirfing</i> , made by fairy hands,
With sleep-expelling charms, I come.	<i>Hervor</i> from thy tomb demands.
Break thy drowsy fetters, break!	<i>Hervardur</i> , <i>Hiorvardur</i> , hear!
'Tis <i>Hervor</i> calls—Awake! awake!	Lift, oh lift, my father dear!

* *Dahlberg*, tab. 315. † The same, and tab. 281. ‡ *Olaus Magnus*. ¶ *Wormii Mon. Dan.* p. 63.

§ I do not well understand some of these distinctions; but give them from *Olaus Magnus*, lib. i. c. 18. Most of them are exemplified at *Finsla* in *Sweden*. See *Dahlberg*, tab. 104, and *Perinisköld Monum. Sueo-Goth.* p. 216.

|| *Wormii Monum. Dan.* 64, & passim.

** *Dahlberg*, tab. 314.

†† By my friend, the

Reverend Mr. *Williams* of *Vron*.

Each from his silent tomb I call ;
 Ghosts of the dead, awaken all !
 With helmet, shield, and coat of mail,
 With sword and spear, I bid ye hail !
 Where twisted roots of oak abound,
 And undermine the hollow ground,
 Each from his narrow cell I call ;
 Ghosts of the dead, awaken all !
 In what darksome cavern deep,
 Do the sons of *Angrym* sleep ?
 Dust and ashes tho' ye be,
 Sons of *Angrym*, answer me.
 Lift'ning in your clay-cold beds,
 Sons of *Eyvor*, lift your heads.
 Rise, *Hiorvardur*, rise and speak ;
Hervardur, thy long silence break.
 Dust and ashes tho' ye be,
 One and all, oh answer me.
 Never, oh never may ye rest ;
 But rot and putrefy unblest'd,
 If ye refuse the magic blade,
 And belt, by fairy fingers made !

A N G A N T Y R .

Cease, oh daughter, cease to call me ;
 Didst thou know what will befall thee,
 Thou hadst never hither sped,
 With Runic spells to wake the dead :
 Thou, that in evil hour art come
 To brave the terrors of the tomb.
 Nor friend, nor weeping father, gave
Angantyr's reliques to the grave ;
 And *Tirfing*, that all-conqu'ring sword,
 No longer calls *Angantyr* lord.
 A living warrior wears it now——

H E R V O R .

'Tis false, *Angantyr* ; only thou.
 So may great *Odin* ever keep
 In peace the turf where thou dost sleep ;
 As *Tirfing* still beside thee lies,
 Th' attendant of thy obsequies !
 My just inheritance I claim ;
 Conjure thee by a daughter's name,
 Thy only child !

A N G A N T Y R .

Too well I knew

Thou wouldst demand what thou shalt rue,
 By *Tirfing's* fatal point shall die
 The bravest of thy progeny.
 A warlike son shall *Hervor* bear,
Hervor's pride, and *Tirfing's* heir ;
 Already, daughter, I foresee
Heidrek the hero's name will be :
 To him, the young, the bold, the strong,
Tirfing hereafter will belong.

H E R V O R .

Ne'er shall my enchantments cease,
 Nor you, ye spirits, rest in peace,
 Until ye grant what I demand,
 And *Tirfing* glitters in my hand.

A N G A N T Y R .

Oh Virgin, more than woman bold !
 Of warlike mien, and manly mould !
 What has induc'd thy feet to tread
 The gloomy mansions of the dead,
 At this lone hour, devoid of fear,
 With sword, and shield, and magic spear ?

H E R V O R .

The cause thou know'st, why to thy tomb
 I've wander'd thro' the midnight gloom :
 Yield then the Fairies work divine ;
 Thou art no father else of mine ;
 But goblin damn'd.

A N G A N T Y R .

Then hear me, Maid,

That art not ev'n of death afraid !
Hialmar's bane thou shalt command ;
 The fatal sword is in my hand :
 But see the flames that round it rise !
 Dost thou the furious fire despise ?

H E R V O R .

Yes ; I dare seize, amidst the fire,
 The object of my soul's desire ;
 Nor do these eyes behold with dread,
 The flame that plays around the dead.

A N G A N T Y R .

Rash Maid ! will nothing then controul
 The purpose of thy daring soul ?

But

But hold—ere thou shouldst fall a prey
To these fierce flames that round it play,
The sword from out the tomb I'll bring;
Go, and the song of triumph sing.

HERVOR.

Offspring of kings! I know thee now,
And thus before thy presence bow;
Rather, Hero, Prince, and Friend!
To thee my grateful knees I bend.
Not half so happy had I been,
Tho' *Scandinavia* hail'd me queen.

ANGANTYR.

How art thou to thy int'rest blind,
Weak woman, tho' of dauntless mind!
Tirring, the object of thy joy,
Thy future offspring shall destroy.

HERVOR.

My seamen call; I must away:
Adieu, O King! I cannot stay.
Fate, do thy worst! in times to come
Be what it may, my children's doom!

ANGANTYR.

Take then, and keep *Hjalmar's* bane,
Dy'd in the blood of heroes slain.

Long shall the fatal pledge be thine,
Hervor, if truly I divine;
The fell, devouring, poison'd blade,
For death and for destruction made.

HERVOR.

With joy the two-edg'd sword I take,
Nor reck the havoc it will make;
Possessing which, I little rue
Whate'er my frantic sons may do.

ANGANTYR.

Daughter, farewell! as thou dost live,
To thee the death of twelve I give:
To thee, O maid of warlike mind,
What *Angrym's* sons have left behind.

HERVOR.

Angantyr, rest in peace! and all
Ye ghosts, who have obey'd my call;
Rest in your mould'ring vaults below!
While from this house of death I go,
Where, bursting from the vap'rous ground,
Meteors shoot, and blaze around.

I shall just mention, that the antient *Scandinavians* had also their *Cromlehs* *. I can trace but one instance, and that on the top of a tumulus in *Zealand*; which, with two other barrows, is included in a square of stones.

Circles, for the purpose of religious rites, were not wanting here. The *Ettestupa*, or circle of lofty rude columns in *West Gothland*, was celebrated for the sacrifices of the heathens †; and the great stones at *Finstad*, disposed in form of a cell, and called *St. Birgitta's Oratory* ‡, was no other than a temple of worship, analogous, probably, to that of the Druids.

The next step is to the *FEROE* islands, a group about two hundred and ten miles to the north-west of the northern *Schetland*, between lat. 61, 15. and 62, 30. There are seventeen which are habitable, each of which is a lofty mountain arising out of the waves, divided from the others by deep and rapid currents. Some of them are deeply indented with secure harbours; providence seeming to have favored mankind with the safest retreats in the most boisterous seas. All are very steep, and most of

FEROE ISLES.

* *Wormii Mon. Dan.* p. 3.

† *Dalhberg*, tab. 280.

‡ The same, 105.

them

F E R O E I S L E S.

them faced with most tremendous precipices. The surface of the mountains consists of a shallow soil of remarkable fertility; for barley, the only corn sown here, yields above twenty for one; and the grass affords abundant pasturage for sheep. The exports are salted mutton and tallow, goose quills, feathers, and Eider down; and, by the industry of the inhabitants, knit woollen waistcoats, caps, and stockings. No trees beyond the size of juniper, or stunted willows, will grow here: nor are any wild quadrupeds to be met with, except rats and mice, originally escaped from the shipping.

LAND BIRDS.

The list of land birds is very small:—The Cinereous Eagle, p. 214. B; the Lanner, p. 225. K; the Sparrow Hawk, p. 226. N*; a species of Owl; the Raven, N° 134; and Hooded Crow, p. 251. B. are the pernicious species. Ravens were so destructive to the Lambs and Sheep, that in old times every boatman was obliged to bring into the sessions-house, on *St. Olaus's* day, the beak of one of those birds, or pay one skin, which was called the *Raven-fine*, in case of neglect. The remaining land fowl are Wild Pigeons and Stares, White Wagtails, Wrens, and sometimes the Swallow. The Snow Bunting only rests here in spring, on its passage northward. The Heron is sometimes met with. The Spoon-Bill is Common †. The Sea Pie, Water Rail, and Lapwing, are seen here. The birds of the rocks, such as Puffins, Razor Bills, and Little Auks, Foolish and Black Guillemots, swarm here; and the *Geyir-fugl*, or Great Auk, at certain periods visits these islands. The last, by reason of its short wing incapable of flight, nestles at the foot of the cliffs. The Skua, Arctic, Black-backed, and Herring Gulls, Fulmars, Manks, Stormy Petrels, Imber and Northern Divers, Wild Swans and Geese, (the Swans only vernal passengers towards the north) Eider Ducks, Havelda or Long-tailed Ducks, Corvorants, and the Sula Gannet, form the sum of the palmated fowl of these inhospitable spots.

FOWLING.

The manner of fowling is so very strange and hazardous that the description should by no means be omitted. Necessity compels mankind to wonderful attempts. The cliffs which contain the objects of their search are often two hundred fathoms in height, and are attempted from above and below. In the first case, the fowlers provide themselves with a rope eighty or a hundred fathoms in length. The fowler fastens one end about his waist and between his legs, recommends himself to the protection of the Almighty, and is lowered down by six others, who place a piece of timber on the margin of the rock, to preserve the rope from wearing against the sharp edge. They have besides a small line fastened to the body of the adventurer, by which he gives signals that they may lower or raise him, or shift him

FROM ABOVE.

* These on the authority of Mr. *Debes*, who wrote the history of these isles in 1679.

† *Brunnich*, p. 46.

from place to place. The last operation is attended with great danger, by the loosening of the stones, which often fall on his head, and would infallibly destroy him, was it not protected by a strong thick cap; but even that is found unequal to save him against the weight of the larger fragments of rock. The dexterity of the fowlers is amazing; they will place their feet against the front of the precipice, and dart themselves some fathoms from it, with a cool eye survey the places where the birds nestle, and again shoot into their haunts. In some places the birds lodge in deep recesses. The fowler will alight there, disengage himself from the rope, fix it to a stone, and at his leisure collect the booty, fasten it to his girdle, and resume his pendulous seat. At times he will again spring from the rock, and in that attitude, with a fowling net placed at the end of a staff, catch the old birds which are flying to and from their retreats. When he hath finished his dreadful employ, he gives a signal to his friends above, who pull him up, and share the hard-earned profit. The feathers are preserved for exportation: the flesh is partly eaten fresh: but the greater portion dried for winter's provision.

The fowling from below has its share of danger. The party goes on the expedition in a boat; and when it has attained the base of the precipice, one of the most daring, having fastened a rope about his waist, and furnished himself with a long pole with an iron hook at one end, either climbs, or is thrust up by his companions, who place a pole under his breech, to the next footing spot he can reach*. He, by means of the rope, brings up one of the boats crew; the rest are drawn up in the same manner, and each is furnished with his rope and fowling-staff. They then continue their progress upwards in the same manner, till they arrive at the region of birds; and wander about the face of the cliff in search of them. They then act in pairs; one fastens himself to the end of his associate's rope, and, in places where birds have nested beneath his footing, he permits himself to be lowered down, depending for his security to the strength of his companion, who is to haul him up again; but it sometimes happens that the person above is overpowered by the weight, and both inevitably perish. They fling the fowl down to the boat, which attends their motions, and receives the booty. They often pass seven or eight days in this tremendous employ, and lodge in the crannies which they find in the face of the precipice.

FROM BELOW.

The sea which surrounds these islands is extremely turbulent. The tides vary greatly on the western and eastern sides. On the first, where is received the uninterrupted flood of the ocean from the remote *Greenland*, the tide rises seven fathoms: on the eastern side it rises only three. Dreadful whirlwinds, called by the *Danes*, *oes*, agitate the sea to a strange degree; catch up a vast quantity of water,

* In *Pontoppidan's Hist. Norway*, ii. 61. is a plate expressive of this manner of fowling.

so as to leave a great temporary chasm in the spot on which it falls, and carries away with it, to an amazing distance, any fishes which may happen to be within reach of its fury. Thus great shoals of Herrings have been found on the highest mountains of *Feroe*. It is equally resistless on land, tearing up trees, stones, and animals, and carrying them to very distant places. We must no longer laugh at the good archbishop*, who gravely tells us, that at times, the Rats called *Lemming* are poured down from the clouds in great showers on the *Alps* of *Norway*. We assent to the fact; but must solve the phenomenon by ascribing it to a whirlwind, as he does in one place; yet immediately supposes they may be bred in the upper regions out of feculent matter.

Among the numerous whirlpools of these seas, that of *Suderoe*, near the island of the same name, is the most noted. It is occasioned by a crater, sixty-one fathoms in depth in the centre, and from fifty to fifty-five on the sides. The water forms four fierce circumgirations. The point they begin at is on the side of a large basin, where commences a range of rocks running spirally, and terminating at the verge of the crater. This range is extremely rugged, and covered with water from the depth of twelve to eight fathoms only. It forms four equidistant wreaths, with a channel from thirty-five to twenty fathoms in depth between each. On the outside, beyond that depth, the sea suddenly sinks to eighty and ninety. On the south border of the basin is a lofty rock, called *Sumboe Munk*, noted for the multitude of birds which frequent it. On one side, the water is only three or four fathoms deep; on the other fifteen. The danger at most times, especially in storms, is very great. Ships are irresistibly drawn in: the rudder loses its power, and the waves beat as high as the masts; so that an escape is almost miraculous: yet at the reflux, and in very still weather, the inhabitants will venture in boats, for the sake of fishing. Mr. *Debes* omits the times of greatest danger. It is to be hoped that attention will be paid to the various periodical appearances of a phenomenon, the cause of which is very satisfactorily explained by the worthy pastor †.

Mankind found their way to these islands some time before the discovery of *Iceland*. *Naddodd*, a *Norwegian* pirate, had retired here, as the only place of security he could find ‡. About this time, *Harold Harfagre* possessed himself of *Norway*, and flung off the *Danish* yoke. A party was formed against him; but it was soon subdued, and the malecontents quitting the kingdom, retired to the *Hebrides*, *Orkneys*, *Schotland*, and *Feroe*, and gave rise to the *Norwegian* reign in all those islands.

ICELAND.

From the *Feroe* islands, the hardy *Scandinavians* made the next step, in their northern migrations, to *ICELAND*. I must premise, that there is the highest probability that this island was discovered in an age most remote to theirs: and that it was the *Thule* of *Pytheas*, an illustrious *Marseillian*, at least cotemporary with

* *Olaus Magnus*, Archb. of *Upsal*.

† See his plan, p. 52.

‡ Islands *Landnamabok*, 5.
Aristotle

*Aristotle**, and who pushed his discoveries towards the north, as his countryman *Euthymenes* did beyond the line. *Pytheas* arrived at *Thule*, an island, says he, six days sailing northward from *Britain*, where, he informs us, was continual day and night for six months alternately†. He does not exactly hit on the length of day and night; but he could have been at no other, at that distance from *Britain*, but *Iceland*, in which there was a most remarkable absence of light. As to *Naddodd*, in 861, he was accidentally driven by a tempest to the eastern side of *Iceland*, to a place now called *Reidarfall*. He found the country covered with snow, and therefore named it *Snœland*; yet he returned home full of its praises. Soon after, *Gardar*, a *Swede*, experienced the same fortune. On a voyage to the *Hebrides*, he was tempest-driven to the same island; on which, by the advice of his mother, who was a sort of diviner, he landed at *Horn*. At this period *Iceland* was cloathed with wood from the shore to the very tops of the mountains. He wintered there, and likewise returned full of its praises‡.

FLOKE, a celebrated pirate, was the next adventurer. He took with him three Ravens, and, like another *Noah*, made them the augury of the land. Before he sailed, he performed a great sacrifice for the success, upon a vast pile of stones, which he raised for the purpose. This points out another origin of the vast tumuli we so frequently see. He made the *Schetland* and the *Feroe* isles his first steps; and loosed from the last for *Iceland*, the nearest point of which is about five hundred and forty miles distant. His first Raven returned to *Feroe*: the second flew back to the ship: the third directed him to the wished-for land§. He wintered there. The cattle he brought with him perished through want. The spring proved unusually cold, and the sea appeared full of ice; for which reason he bestowed on the island the name it at present bears. *Floke* was sick of his voyage: returned full of dispraises of the country. This did not discourage other adventurers, all of them *Scandinavians*, thrust out of the exuberant northern hive. The rest of the world, which their countrymen ravaged, was assuredly too small for them, otherwise they never would have colonized almost the most wretched spot in the northern hemisphere. Ambition possibly actuated the leaders, who might think it

Better to reign in hell than serve in heaven.

Colony after colony arrived. They confederated, and formed a republic, which existed near four hundred years; but with as many feuds and slaughters as could

* The works of *Pytheas* had been read by *Dicaearchus*, a disciple of *Aristotle*'s. See *Strabo*, lib. ii. p. 163.

† *Plin.* lib. ii. c. 75.

‡ Same, p. 7.

§ Same, p. 8. *Torfaeus. Hist. Norveg.* ii. 97.

happen in a climate where luxury might pamper and corrupt the inhabitants. In 1261, wearied with their dissensions, they voluntarily re-united themselves to their mother-country, *Norway*, under the reign of its monarch *Haquin*. It is remarkable, that the poetic genius of their aboriginal country flourished with equal sublimity in every climate. The *Scalds*, or bards, retained their fire in the inhospitable climate of *Iceland*, as vigorously as when they attended on their chieftains to the mild air of *Spain*, or *Sicily*, and sung their valiant deeds.

Every thing which furnished topics to the poets of other countries, was, in the most remote period, wanting here. Groves, verdant meadows, purling streams, and gentle zephyrs, were totally unknown; and in their stead, stunted shrubs, a thin herbage, rude torrents, and fierce gales, reign in every part. We admit the apology of the learned *Torfæus* for the present state of his country*. Violent tempests might cover whole tracts with the unstable sand, eruptions of water from the mountains desolate some parts, earthquakes bury vast extents of fertile land with fragments of rocks, and inundations of the sea change the face of others. But soft scenery was not requisite to inspire poets who were to sing only the preparations for warlike exploits, the slaughter of a battle, the deeds of their heroes, and the magic solemnities of superstitions.

The island, at present, exhibits to the traveller amazing slopes of lava, which once streamed from the volcanoes, and terminated in the sea. Such is the appearance, about three miles from *Hafnaifjörð*, in lat. 64. 4. of vast masses of lava piled to a mountainous height upon each other, broken, vitrified, sharp, rude, and black. In parts, sandy tracts intervene: in others, a soil peculiar to the place, a tufa, originated from the violent eruptions of impure water which rush from the mountains, attendant on the fiery eruptions. Vallies composed of a very thin soil, afford grass for a numerous breed of cattle and sheep. Here is found variety of species of the best grasses; of the *aira*, *poa*, *festuca*, and *carex*. Part is harvested against winter; but not in such plenty, but that the farmer is obliged often to feed his stock with the wolf-fish, or the heads of cod-fish beaten small, and mixed with a quarter part of hay. To what food will not necessity compel both man and beast to recur!

WOODS LONG
LOST.

DRIFT-WOOD.

The woods of *Iceland* have long since vanished, unless we except a few stunted birch, scarcely ten feet high, and four inches in diameter; and a few species of willow, so small and so rare as scarcely to be of use to the inhabitants. But they are abundantly supplied with drift-wood from *Europe* and *America*, as appears by the species found on the shores, especially on all the northern coast, as *Langanefs* on the north-east, and *Hornstrandt* on the north-west. That woods were found here

* *Hist. Norweg.* i. 12.

in very remote periods, is very evident, from the quantity of *futurbrand* met with in several parts; which still retains traces of its vegetable origin; the marks of branches, and circles of the annual growth of the wood: some pieces are even capable of being planed. It is found in the fissures of the rocks, much compressed by their weight, and in pieces sometimes big enough to make a middle-sized table. This is sometimes used as fuel; but the want of it is supplied, in some measure, by the drift-wood, by peat, and by several strange substitutes, the effect of necessity. Smiths prefer the *futurbrand* to sea-coal in their business. The beds of this fossil strongly refute the notion of *Iceland* having been entirely formed by volcanic violence, since the original creation; and raised out of the sea in later times, as others have been known to have done. *Delos* and *Rhodos*, in very remote ages; *Thera*, the modern *Santorini*, and *Therassia*, in the 135th *Olympiad*; *Thia*, in the time of *Pliny**; and in the beginning of this century another sprung from the sea, by the force of subterraneous fires, near to *Santorini*†: and, while I am now writing, an island is forming by the same cause, not remote from the *Reickenes*, part of the very island in question. But these *futur* or *forte brands* are certainly the remains of antient forests, overturned and buried by earthquakes, after the golden age of the island. Let me add to this another proof, from the number of its vegetables: there being found on it not fewer than three hundred and nine perfect, and two hundred and thirty-three cryptogamous plants. On the isle of *Ascension*, which is totally and aboriginally volcanic, a *Flora* of not more than seven plants is to be seen‡.

PLANTS, NUMBER
OF.

THIS vast island extends from 63. 15. to about 67. 18. north latitude: is reckoned to be five hundred and sixty *English* miles long, and about two hundred and fifty broad§. It has a rugged coast, indented deeply with secure bays; but faced with very few isles. It lies in the *Hyperborean* ocean, divided from *Greenland* by a sea about thirty-five leagues wide¶. The whole is traversed with great ridges of mountains; the highest naked, and usually free from snow, by reason of the saline and sulphurous particles with which they abound. The lower, called *Jökkel*, are cased with eternal ice and snow; and are the *glacieres* of *Iceland*. Of these, *Snæfjall Jökkel*, which hangs over the sea in the west part of the island, is far the highest¶. Out of these, at different periods, have been tremendous eruptions of fire and water, the burst of which is attended with a most terrific noise: flames and balls of fire issue out with the smoke: and showers of stones are vomited up; of which there has been an instance of one weighing near three hundred pounds being flung to the

* *Hist. Nat.* lib. ii. c. 87.

† Most admirably described in the *Ph. Transf. Abridg.* v. 196, &c.

‡ *Osbeck's Voy.* ii. 98. *Forster's Voy.* ii. 575. 576.

§ *Mallet*, i. 15.

¶ *Kerguelin*, 175.

¶ See *Olaffen*, i. tab. xvii.

distance of four miles. The heights of the mountains have not been taken; but that of the *Hecla-fall* is not far short of seventeen hundred yards. Of this species of mountain, *Hecla* has been most celebrated: the records of *Iceland* enumerate ten of its eruptions since the arrival of the *Norwegians*. It was the hell of the northern nations; but they seem divided in their opinions, whether the pains of the damned arose from fire, or, what was more tremendous to the natives of these countries, from the cold*.

To bathe in fiery floods, or to reside
In thrilling regions of thick-ribbed ice,

Hecla has been known to have had only ten eruptions between the years 1104 and 1693; from the last to 1766, when it burst out in flames and *lava*. It emitted flames in 1771 and 1772; but did not overflow with *Stemma*, or a stone flood. But other vulcanoes have, in the present century, proved the spiracles to the internal fires of *Iceland*. The vallies between the mountains are in general sandy and sterile. Fiery eruptions are not confined to the mountains. Last year they burst out of the sulphureous soil of the low parts of *Skaftafeld Syffel* or province; and the lava has overflowed the country for the space of thirty miles, and has at last reached the sea, destroying every thing in its progress. It dries up the rivers, and fills their beds with lava. Moors in some places stop its course; but it totally changes their nature. It has taken to the deserts of the same province, and begins to spread to the east, or *Mulé Syffel*, the most populous and fruitful part of the island; nor were there any signs of its ceasing at the time when this account was sent to me †.

HUERS, OR BOILING
JETS D'EAUX.

THE FOUNTAINS of many of the vallies are of a most extraordinary nature; are called *Huers*, and form at times *jets d'eau* of scalding water, ninety-four feet high, and thirty in diameter, creating the most magnificent *gerbes* in nature! especially when backed by the setting sun. They arise out of cylindrical tubes of unknown depths: near the surface they expand into apertures of a funnel shape, and the mouths spread into large extent of stalactitical matter, formed of successive scaly concentric undulations. The playing of these stupendous spouts is foretold by noises roaring like the cataract of *Niagara*. The cylinder begins to fill: it rises gradually to the surface, and gradually encreases its height, smoking amazingly, and flinging up great stones. After attaining its greatest height, it gradually sinks, till it totally disappears. Boiling *jets d'eau*, and boiling springs, are frequent in most parts of the island. In many parts they are applied to the culinary uses of the natives. The most capital is that which is

* *Bartholinus de Contemptu Mortis*, 359.

† Letter from Mr. Brunnich, dated October 31, 1783.

called *Geyer*, in a plain rising into small hills, and in the midst of an amphitheatre, bounded by the most magnificent and various-shaped icy mountains; among which the three-headed *Hæla* soars pre-eminent.

These *Hærs* are not confined to the land. They rise in the very sea, and form scalding fountains amidst the waves. Their distance from the land is unknown; but the new volcanic isle, twelve miles off the point of *Reickenes*, emitting fire and smoke, proves that the subterraneous fires and waters extend to that space; for those awful effects arise from the united fury of these two elements *. The depth of water between this new creation and the *Geir-fugl Skier*, is forty-four fathoms; ten leagues to the west, two hundred and five; and the bottom composed of black sand †; doubtless no other than the *Pumex arenaceus*, the frequent evomition of volcanoes. How much past human comprehension must the powers have been, that could force up materials for an island, even from the medium depth I have given! and how deep beneath the bottom of the ocean must have been the causes which could supply stone, or pumice, or lava, to fill the space which this island occupies, many miles in circumference, and possibly above a hundred fathoms in depth!

If some islands spring out of these seas, others are swallowed by the force of earthquakes. Their foundations are undermined by the fury of the subterraneous elements, which carries off the materials of their basis, and discharges it in lava, or different forms, through the volcanic *spiracula*. The earthquakes shatter the crust on which they stand, and they tumble into the great abyfs. Such was the fate of the nine isles of *Gouberman*, which lay about four leagues from *Sandanes*, between *Patrisfjord* and *Cape Nort*, all which suddenly disappeared. Their names still exist in several maps; but their place is only distinguishable by the superior depth of water in the spot on which they stood ‡.

The number of inhabitants in *Iceland* is computed not to exceed sixty thousand. Considering the ungenial surface of this vast island, probably the number is equal to the means of support. Writers apologize for the fewness of inhabitants, by attributing it to the almost depopulation of the place by the *forte diod*, or black death, a pestilence which commenced in *Cathay*, or *China*, in 1346, spread over all *Asia*, and *Africa*, reached the south of *Europe* in 1347, and in 1348 spread itself over *Britain*, *Germany*, and northern *Europe*, even to the extremity of the inhabited north. The small-pox, and other epidemics, are mentioned as contributing to thin the island. During the time of the plague, tradition relates,

IN THE SEA.

PEOPLE, NUMBER
OF.

PESTILENCE.

* See Mr. Whitehurst's Theory.
par M. de Kerguelin, 69.

† Sable noir comme la poudre a canon. *Voyage au Nord*,
‡ The same, 65, 66.

in terms most graphically horrid, that the persons who escaped to the mountains, saw the whole low country covered with a thick pestiferous fog. A guess may be made at the number of inhabitants in the eleventh century; for a bishop of *Schalholt* caused, in 1090, all who were liable to pay tribute to be numbered: four thousand of that rank were found; so that, giving five to a family, the sum is twenty thousand *. Much of the labor in the northern world falls to the female part of the family; and in those patriarchal times, the sons also shared the toil. I cannot therefore under-rate the number of commonalty, or untaxable people, heads of families, at ten thousand; which, by the same rule, will give fifty thousand of the lower rank. Besides the dearth of food in this rude island, other causes contribute to prevent the increase of inhabitants. Necessity forces the men to seek from the sea subsistence, denied by their niggardly land. Constant wet, cold, and hard labor, abridge the days of thousands; and that labor is increased tenfold, to supply the rapacity of their masters. Incredible as it may seem, a late king of *Denmark* sold the whole island, and its inhabitants, to a company of merchants, for the annual rent of one thousand pounds. This company enslave the poor natives; who are bound to sell their fish, the staple of the island, at a low price to these monopolizers; who, dreading resistance, even have taken from them the use of fire-arms! Here is given a stronger cause of depopulation, perhaps, than the others; for *Hymen* can have but faint votaries in the land from whence liberty is banished. But for these causes, here ought to be found the genuine species of the *Norman* race, unmixed with foreign blood; as must be the case with every place remote from the rest of the world. Here are to be sought the antient customs and diet of their original stock, which are now probably worn out in the land of their distant ancestors. The luxury of food has so little crept in among them, that their meat and drink in general is peculiar to themselves; and much of the former composed of herbs neglected in other places.

DRESS.

The dress of the natives seems unchanged for a very considerable time: that of the men is simple, not unlike that of the *Norwegian* peasants †; that of the females is graceful, elegant, and peculiar to them, and perhaps some very old-fashioned *Norwegian* lady. They ornament themselves with silver chains and rich plates of silver, beautifully wrought. On their head is a lofty slender dress, not unlike a *Phrygian* bonnet. I cannot compare this to any antient *European* fashion. *Isabel* of *France*, queen to *Edward* II. wore a head-dress of an enor-

* *Arngrim Jonas's Comment. Iceland. in Hackluyt, i. 556.*
soppidan, ii. tab. p. 272.

† See *Olaffen, i. tab. iii. Pon-*

mous height, of a slender conic form *; but which, for want of the flexure at top, gave place in elegance to the taste of the *Icelandic* fair.

Mr. *Troil* awakens our curiosity about the *Icelandic* antiquities; speaks of castles, and heathen temples, and burying-places, and upright stones, and mounts. Of the first I am solicitous to gain some further knowledge, for possibly they might direct to the origin of the round buildings in the *Hebrides*, *Orknies*, *Schotland*, and the north of *Scotland* †: others seem to me the various *Scandinavian* antiquities, admirably exemplified in Baron *Dahlberg's Suecia Antiqua et Moderna*.

The species of quadrupeds of this island are very few. Small horses of a hardy kind; cows in great abundance, and mostly hornless, the flesh and hides of which are considerable articles of exportation. Sheep are met with in great flocks in every farm; the wool is manufactured at home, the meat salted, and, with the skins, much of it is sold to the Company, at the twenty-two ports allotted for the purposes of traffic. It is remarkable, that the climate disposes their horns to grow very large, and even to exceed the number of those of the sheep of other countries; examples of three, four, and five, being extremely frequent. Goats and swine are very scarce; the first, for want of shrubs to browse, the last through deficiency of their usual food, and the supply which the farm-yards of other countries afford.

The dogs are sharp-nosed, have short and sharp upright ears, bushy tails, and are full of hair. Here are domestic cats; but numbers are grown wild, and multiply among the rocks, so as to become noxious. The reader need not be reminded, that these, and every species of domestic animals, were originally introduced into *Iceland* by the *Norwegians*.

An attempt has been made to introduce the Rein Deer, *Arct. Zool. N. 4*. Those which survived the voyage have bred frequently. There can be little doubt of their succeeding, as *Iceland* has, in common with *Lapland*, most of the plants for their summer food ‡, and abundance of the Rein Deer lichen for their winter provision.

Rats and Mice seem to have been involuntarily transported. Both the domestic species are found here; and the white variety of the Mouse, called in the *Icelandic*, *Skogar Mys*, is common in the bushes. I suspect that there is a native species, allied, as Doctor *PALLAS* imagines, to the *Œconomic*, *Arct. Zool. p. 134, A.*; for, like that, it lays in a great magazine of berries by way of winter-stores. This species is particularly plentiful in the wood of *Husafels*. In a country where

DOMESTIC QUADRUPEDS.

RATS.

* *Monfaucon Monum. de la Monarchie Fr. ii. tab. xlii. Olaffen. ii. 234. and Anæn. Acad. iv. 151.*

† *Voy. Hebrides.*

‡ *Confer.*

I C E L A N D.

berries are but thinly dispersed, these little animals are obliged to cross rivers to make their distant forages. In their return with the booty to their magazines, they are obliged to repass the stream; of which Mr. *Olaffen* gives the following account:—
 “The party, which consists of from six to ten, select a flat piece of dried cow-dung, on which they place the berries in a heap in the middle; then, by their united force, bring it to the water’s edge, and after launching it, embark, and place themselves round the heap, with their heads joined over it, and their backs to the water, their tails pendent in the stream, serving the purpose of rudders*.” When I consider the wonderful sagacity of Beavers, and think of the management of the Squirrel, which, in cases of similar necessity, make a piece of bark their boat, and tail their sail†, I no longer hesitate to credit the relation.

FOXES.

The Common Fox, *Arct. Zool.* N° 11, and the Arctic, N° 10, are frequent; are proscribed, and killed for the sake of a reward, in order to prevent the havoc they would make among the sheep.

BEARS.

The Polar Bear, N° 18, is often transported from *Greenland*, on the islands of ice; but no sooner is its landing discovered, than a general alarm is spread, and pursuit made till it is destroyed. The *Icelanders* are very intrepid in their attack on this animal; and a single man, armed only with a spear, frequently enters the lists with this tremendous beast, and never fails of victory. A person who lived near *Langenefs*, the extreme northern point, where the Bears most frequently land, is still celebrated for having slain not fewer than twenty in single combat. There is a reward for every skin, which must be delivered to the next magistrate.

The Common Bat, p. 185, A. is sometimes found in this island, and finishes the list of the land-animals of the country.

The amphibious quadrupeds, or Seals, are very numerous. *Iceland*, being blessed with domestic animals, has less use of this race than other *Arctic* countries; yet they are of considerable advantage. The skins are used for cloathing; a good one is equal in value to the skin of a sheep, or the hide of a cow; and the fat supplies the lamps in the long nights with oil. The Common, during winter, is excessively fat, and will yield sixty pounds.

SEALS.

The *Icelanders* have two species of native Seals: the Common, N° 72, called by them *Land-Sælur*, because it keeps near the coast; the other, the Great, N° 73, or *Ut-Sælur*. They are taken in nets placed in the creeks and narrow bays, which they pass through to get on shore. When it begins to grow dark the hunters make a fire, and fling into it the shavings of horns, or any thing that smells strong; this allures the Seals, who strike into the nets, and are taken.

* *Olaffen*, as related to him.

† *Linnaeus, Klein, Rzaczynski, Scheffer.*

At other times, a *koder* or lure is tied to a rope, and placed before the nets; to which the Seals, supposing it to be some strange animal, will eagerly swim, and strike into the nets, paying with their lives for their curiosity. This carries them sometimes so far, that they will stray to a considerable distance inland, attracted by a candle, or the fire in a smith's forge. If they are taken young, they are capable of being tamed: they will follow their master, and come to him like a dog, when called by the name which is given them. The *Icelanders* have a strange superstition about these animals: they believe they resemble the human species more than any other, and that they are the offspring of *Pharaoh* and his host, who were converted into Seals when they were overwhelmed in the *Red Sea*.

Other species of Seals are migratory. Among them is the Harp, N° 77, or *Vade-Selur*. These quit the seas of *Iceland* in *March*, and swim through the straits of *Davies*, by some unknown opening, to the farthest north; bring forth their young, and return, by the north of *Greenland*, in *May*, extremely lean, to the north of *Iceland*; continue their route, and return to that island about *Christmas*, chiefly upon the drift-ice, on which they are either shot, or harpooned. The Hooded Seal, N° 76, or *Bladru* Seal, is rarely taken here. The Walrus, N° 71, or *Rost-unger*, is sometimes wafted here from *Greenland* on the ice.

It cannot be expected, that many of the feathered tribe should inhabit an island so very severe in its climate, and so remote from the more southern continent and islands. It is, like all other *Arctic* countries, the asylum to water-fowl, to breed and educate their young; but, being an inhabited place, fewer resort here than to the untrodden wastes of the more distant north. The Gulland Duck, p. 572. E. may possibly be a local bird. The rest, whether land or water, are common to *Norway*, and many other parts of *Europe*. The Great Auks, N° 428, are found here in greater numbers than elsewhere: they inhabit and breed on the rocks, called from them *Geir-fugl Skier*, off the point of *Rakenes*, the most southern part of the island. Notwithstanding they are surrounded with a swelling sea, and tremendous breakers, the *Icelanders* venture there annually, in order to collect the eggs, to contribute to the provision of the year. I can only reckon sixteen land-birds*: twenty cloven-footed water-fowl; four with pinnated

BIRDS.

* Sea Eagle, N° 87.	Raven, - - N° 134.	Lesser Field-Lark, - p. 395.
Cinereous Eagle, p. 214, B.	White Grouse, - N° 183.	Snow Bunting, - - N° 222.
Iceland Falcon, - 216, D.	Hazel Grouse? - - p. 317, F.	White Wagtail, - - p. 396.
Gyr Falcon, - - 221, F.	Star, - - - p. 331. A.	Wheat-ear, - - - p. 420.
Lanner, - - - 225, K.	Red-wing Thrush, p. 342. D.	Wren, - - - N° 322.
Short-ear'd Owl? N° 116 †.		

† *Claffen*, ii. tab. xlv. gives the figure of an Owl resembling h's species.

feet, and forty-three with webbed feet, natives or frequenters of the island. I have omitted, in the Zoologic part, the Lesser Guillemot, *Br. Zool.* ii. N^o 235, which is a native of *Iceland*, and called there *Ringuia*. It ought to have had a place in an appendage to the Guillemots, p. 517.

The Raven holds the first rank among the land-birds in the *Scandinavian* mythology. We see the use made of them by the chieftain *Floke*. The Bards, in their songs, give them the classical attribute of the power of presage. Thus they make *Thromundr* and *Thorbiorn*, before a feudal battle, explain the foreboding voice of this bird, and its interest in the field of battle *.

THR. Hark! the Raven's croak I hear,
Lo! the bird of Fate is near.
In the dawn, with dusky wings,
Hoarse the song of death she sings.

Thus in days of yore she sang,
When the din of battle rang;
When the hour of death drew nigh,
And mighty chiefs were doom'd to die.

THOR. The Raven croaks: the warriors slain,
With blood her dusky wings stain;
Tir'd her morning prey she seeks,
And with blood and carnage recks.

Thus, perch'd upon an aged oak,
The boding bird was heard to croak;
When all the plain with blood was spread,
Thirsting for the mighty dead.

R. W.

The Raven had still higher honors in the northern nations. It was sacred to *Odin*, the hero and god of the north. On the sacred flag of the *Danes* was embroidered this bird. *Odin* was said to have been always attended by two, which sat on his shoulders; whence he was called the *God of Ravens*: one was styled *Huginn*, or *Thought*; the other *Muninn*, or *Memory*. They whispered in his ear all they saw or heard. In the earliest dawn, he sent them to fly round the world, and they returned before dinner, fraught with intelligence. *Odin* thus sang their importance:

Huginn and *Muninn*, my delight!
Speed thro' the world their daily flight:
From their fond lord they both are flown,
Perhaps eternally are gone.
Tho' *Huginn's* loss I should deplore
Yet *Muninn's* would afflict me more †.

R. W.

I have already spoken of the excellent Falcons of this island: let me add, that Falcons were among the animals sacrificed to *Odin* ‡, being birds of the first courage, and which delighted in blood.

* *Island's Landnamabok*, 172. † *Bartholinus de Causis contempta Mortis*, &c. 429. ‡ *Mallet's Northern Antiq.* ii. 132.

I C E L A N D.

LIII

The sea which surrounds *Iceland* is said to be more salt than usual in other countries. It leaves great saline incrustations on the rocks, which the natives scrape off and use. I can, with no certainty, give the depth of the water, except where Mr. *Kerguelin* founded, ten leagues to the west of *Geir-fugl Skier*, where he found it to be two hundred and five fathoms *. The equinoctial tides rise as high as sixteen feet: the ordinary tides twelve †. The coasts almost universally bold, those of the inlets excepted, where there appears a small strand.

SEA.

The bays, especially those of the south, which lie under the influence of the cold of *Greenland*, are annually frozen over; that of *Patrisford* was shut up even as late as the 14th of *May* ‡: but the sea near the coasts never feels the influence of the frost. It is in those places deep, and agitated by a most turbulent motion. The dreaded ice is what floats from *Greenland* and *Spitzbergen*, and often fills, during the whole summer, the strait between the former and this island §, and even extends along the northern coast, covering the sea to a vast distance from land. It consists of the two species, the mountainous ice, called *Fiel-jakar*; and the smooth ice of inconsiderable thickness, styled *Hellu-is*. These arrive generally in *January*, and go away in *March*. Sometimes it does not touch the land till *April*, when it fixes for a considerable time, and brings to the *Icelanders* the most tremendous evils; a multitude of polar bears, which spread their ravages far and wide among the cattle; and a cold of incredible violence, which chills the air for many miles, and even causes the horses and sheep to drop down dead ¶. To this is attributed the stunted state of the miserable woods of the country; which cause must have existed from the commencement of its iron age; for there seems to have been a period in which there had been considerable wooded tracts ¶.

BAYS FROZEN.

FLOATING ICE.

The bottom of the sea is probably rocky; for it abounds with greater variety of *fuci* than *Great Britain*, which give shelter to fishes innumerable; a source of wealth to the natives (were they permitted the free use) as they are of food to distant nations, the vessels of which annually resort here to fish, but without any commerce with the *Icelanders*, which is strictly prohibited. In 1767, two hundred *Dutch*, and eighty *French* doggers, of about a hundred tons each, were employed, those of each nation under the orders and protection of a frigate. They keep from four to six leagues from shore, and fish with hooks baited commonly with large mussels, in forty or fifty fathoms water. Others go to the distance of fifteen leagues, and fish in the depth of a hundred fathoms. The great cap-

* *Voyage au Mer du Nord*, 69.

† *Horrebow*, 101.

‡ *Kerguelin*, 31.

§ *Troill*, 48; 49.

¶ *Kerguelin*, 20, 175.

¶ See p. xlv.

ture is Cod. As soon as the fishermen take one, they cut off the head, wash, gut, and salt it in casks, with either rock-salt or that of *Lisbon*. The fishery commences in *March*, and ends in *September*. It begins at the point of *Brederwick*, and extends round the *North Cape*, by the isle of *Grim*, to the point of *Langenefs*.

The *English* have entirely deserted this fishery since they have been in possession of *Newfoundland*. It had been, in very early times, the resort of our vessels, as is evident by the proclamation of *Henry V.* in order to give satisfaction for the ill conduct of some of his subjects, in 1415, on the coasts of this island *, in which he forbids them to resort to the isles of *Denmark* and *Norway*, especially to *Iceland*, otherwise than had been antiently customary. In 1429, the *English* parlement enforced this order, by making it penal for any of our subjects to trade in the *Danish* ports, except in *North Earn* or *Bergen*. At length, the *Danish* monarch wisely resolved to reserve the benefits of the fisheries to his own subjects; and in 1465 made it capital for any *Englishman* to trade in the ports of *Iceland* †. Even those of *Helgeland* and *Finmark* were shut against them, unless they were driven in by a storm. I imagine that this severity must have arisen from some glaring insolence of our countrymen. But the antient treaties were revived, which were renewable by a fresh grant every seven years ‡. In later times, even Queen *Elizabeth* deigned to ask leave of *Christian IV.* to fish in those seas; but afterwards instructed her ambassador to insist on the right of a free and universal fishery. The answer does not appear: but in the reign of her successor, we had not fewer than a hundred and fifty vessels employed in this fishery. Possibly we might comply with the regulations insisted on by the king of *Denmark*; or perhaps a greater indulgence was given, by reason of the marriage of *James* with his sister *Anne*. I observe, that the *Danish* prince excepts the port of *Westmany*, it being reserved for the peculiar supply of the royal court ||.

The oppressed natives fish in the bays in boats, containing one, and never more than four men. If they venture to sea, which they seldom do to above eight miles distance, they have larger boats, manned with twelve or sixteen hands; in these they slave for the benefit of the monopolists, to whom they are compelled to sell their fish at a trifling price. How weak must be the feelings of that government which can add misery to misery; and not attempt rather to bestow comforts on subjects condemned to such a dreadful abode!

The species of fish in these seas are few; but the multitudes, under several of the most useful kinds, are amazing; those of Cod in particular. Herrings pass by

* *Rymer's Fœd.* ix. 322.

† *Ibid.* xvi. 443.

‡ *Ibid.* xv. 443.

|| *Cambden's Life of Queen Elizabeth*, in the *Complete Hist. of England*, ii. 550.

this island in their annual migrations from the north, and for a short space fill every bay. Poverty and want of salt make these riches of other nations a tantalizing appearance to the unfortunate natives. This is the most northern place in which the Herring is seen: they are not found in the shallow water of *Spitzbergen*; neither is it probable that they double *Greenland*, and retire to the frozen ocean, equally wanting in depth of water;—are they not rather lost in the vast profundity of these very seas, in the depth of six hundred and eighty-three fathoms, in lat. 65, between this island and the north of *Norway*; or in the unfathomable depths a little farther north, where the water was found bottomless with seven hundred and eighty fathoms*? The other fishes of *Iceland* are in general common to *Greenland*: my remarks respecting them shall be deferred till I treat of that icy region.

VAST DEPTHS OF
WATER.

In order to view the correspondent shores of the tract I have passed over, I shall return to the streights of *Dover*. *Calais* is seated in a low wet tract; and the whole coast, from thence to the extremity of *Holland*, is sandy, and fronted with sand-hills; providentially highest in that lowest of countries, in which the strongest protection against the fury of the sea is necessary. The coast of *Flanders*, the rich bait of ambition, stained with blood, is dangerous by reason of frequent narrow sand-banks, disposed in parallel rows, according to the direction of the land. The coasts of *Holland* are also greatly infested with sands; but between them and the land is a clear channel. From between *Dunkirk* and *Calais*, even to the *Scar*, at the extremity of *Jutland*, is low land, not to be seen but at a small distance, unless at *Camperden* in *Holland*; *Heilegeland*, off the mouths of the *Elbe* and *Wefer*; and *Robsnout*, and *Hartshol*, in *Jutland*. While the opposite coasts of *England* are comparatively high, and the channel deep, these are universally obstructed with sand: the great *German* rivers bring down by their floods amazing quantities of sand and mud, the course of which is impeded at sea by the violence of the winds, blowing at south and west two-thirds of the year†. These, with the help of the tides, arrest the progress of the sand into the open sea, and form the numerous banks which, fatal as they may be to mariners, are the security of *Holland*, in particular, from naval invasions. The spring-tides at *Calais* rise twenty feet; at the pier head at *Dover*, to twenty-five; the cause of the variation is supposed, by Mr. *Cowley*, to be the different distances of the two piers from low-water mark, the first being half a mile, the last only a hundred yards; at *Ostend* it rises to eighteen; at *Flushing*, sixteen and a half; at *Helvoetsluys* and the *Texel*, twelve; and on the coasts of *Holstein* and *Jutland*, where the sea expands to a more considerable breadth, the tides grow more irregular, and weaken both in height and strength; at the *Elbe* they do not ex-

STREIGHTS OF
DOVER.

SAND-BANKS OFF
FLANDERS AND
HOLLAND.

TIDES.

* Lord Mulgrave's *Voy. towards the North Pole*.

† Yarranton's *England's Improvement*, 4, 5.

ANTIEN-
T FLAN-
DERS AND HOL-
LAND.

ceed seven or eight feet; on the coast of *Jutland* only two or three; a singular phenomenon, as they are so greatly higher on the correspondent coasts of *England*. The flood on the west coast of *Holland* sets to the northward, contrary to the course of the tides on the east coasts of *England* and *Scotland*.

Flanders and *Brabant* formed part of the *Gallia Belgica* of *Cesar*; and *Holland* the *Batavorum Insula*. The rivers are the *Scaldis*, *Mosa*, and *Rhenus*, the modern *Scheld*, *Maese*, and *Rhine*. The two first probably do not vary greatly in their discharge into the sea: the last has experienced a most considerable change. The right branch of this river runs, for some space, as it did in antient times, when it formed the lake *Flevo*, then resumed the form of a stream, and discharged itself into the sea at a place still called the *Flie-stroom*, between the isles of *Flie-landt* and *Schelling*, at the mouth of the *Zuyder-zee*. Long after that period the country was dry, firm, and well inhabited; a mighty inundation totally changed the face of it, and enlarged the *Flevo lacus* into the present *Zuyder-zee*, and broke the coast into the chain of islands which now front the shore, even as far as the mouth of the *Wefer*. The *Dutch* historians date this accident in 1421: it seems to have been the operation of a length of time; for the passage through the *Texel* was forced open in 1400, and gave rise to the prosperity of *Amsterdam* *. This country was first peopled by the *Catti*, a *German* nation; these were thinned almost to extirpation by the swarms from the great northern hive, in their expeditions by land to other parts of *Europe*. For a very long space *Flanders* and *Holland* were a seat of banditti: the vast forest of *Ardennes* gave protection to them in one country; the morasses secured them in the other. Government at length took place, in *Holland* under its counts, in *Flanders* under its foresters. These provinces fell at last under the dominion of the dukes of *Burgundy*; from them to the house of *Austria* and crown of *Spain*. The revolutions from that are well known. *Holland* received its second population from *Germany*, happily (for a country whose existence depends on industry) a most industrious race. The *Rhine* annually brings down multitudes of people, to repair the loss of men occasioned by distant voyages, and by the most unwholesome colonies in the *East* and *West Indies*. *Holland* is, from its climate, unfavorable to the encrease of mankind: it cannot depend on itself for the reparation of the loss of people, but must look elsewhere for supplies.

ANIMALS.

FLANDERS has many of the same species of animals with *Great Britain*; but, from the nature of its coast, wants most of the water-fowl, a few cloven-footed birds excepted, which breed on sandy shores. *Holland* has still fewer quadrupeds and birds. Of the quadrupeds which we want, are a few *Beavers* in the *Rhine* and *Maese*. The *Wolf* is common in *Flanders*, and is found

* *Anderson's Dict.* i. 225.

in the parts of *Holland* bordering on *Germany*. Both countries have a few birds which never appear in *Britain*, except forced by the violence of weather or pursuit of some bird of prey.

The antient *Germany* next succeeds. *Holland* was a sort of neutral country, a retreat of the *German Catti*, and not *Germany* itself. As at present, the bordering parts were divided into petty states. The rivers which derive their origin far up the country, are the *Ems*, the *Weser*, and the *Elb*, the antient *Amisus*, *Visurgis*, and *Albis*.

Opposite to the mouth of the estuary of the *Weser* and the *Elb*, is the remnant of the *Insula*, *Castum Nemus*, celebrated by *Tacitus*, with his usual elegance, for the worship of *HERTHUM*, or *MOTHER Earth*, by the neighboring nations. *Est in insula oceani, CASTUM NEMUS, dicatum in eo vehiculum veste contectum, attingere uni sacerdoti concessum. Is adesse penetranti DEAM intelligit, vestamque bubus feminis multa cum veneratione prosequitur. Læti tunc dies, festa loca, quæcumque adventu hospitioque dignatur. Non bella ineunt, non arma sumunt, clausum omne ferrum. Pax et quies tunc tantum nota, tunc tantum amata. Donec idem sacerdos satiatam conversatione mortalium Deam templo reddat. Mox vehiculum et vestes, et, si credere velis, numen ipsum, secreto lacu abluitur. Servi ministrant, quos statim idem lacus haurit. Arcanus hinc terror, sanctæque ignorantia, quid sit illud quod tantum perituri vidit* *. The worship was continued very long after that period, and the island was distinguished by the name of *Fostaland*, *Farria*, *Insula Sacra*, or *Heilgeland*, or the *Holy isle*, from the sacrifices made there to the goddess *Fosta*, or *Foseta*, the same with *Vesta*, *Herthum*, or the *EARTH*. She was called by the *Scandinavians*, *Goya*. The victims to her were precipitated into a pit: if they sunk at once, the sacrifice was thought to be accepted: the reverse if they swam any time on the surface †. This island was visited, out of respect to the goddess, by people of high rank. *Radbothus* I. king of the *Frisians*, was here in 690, when *Winbertus*, and other *Christian* missionaries, landed, overthrew the temples, and put an end to the pagan rites ‡. It had been an island of great extent; but by different inundations, between the years 800 and 1649, was reduced to its present contemptible size §. The great island of *Nordstrand* (one of the *Insulæ Saxonum*) not remote from this, in 1634 was reduced, by the same cause, from twenty parishes to one: fifty thousand head of cattle, and between six and seven thousand souls, were swept away. Such are the calamities to which these low countries are liable.

INSULA SACRA,
OR

HEILGELAND.

* *De Mor. German.* c. 40.
Friz. 129. ed. *Franck*.

† *Mallet's North. Antiq. Transl.* i. 136.

‡ *Emmii Hist. Rer.*

§ *Busching Geogr.* i. 157. 167.

JUTLAND.

Jutland and *Holstein*, the antient *Cimbrica Chersonesus* *, and *Cartris* †, terminating in the low point called the *Skagen*, or *Scaw*, stretches out in form of a peninsula, bounded by the North sea and the *Kattegate*, the oblique approach into the *Baltic*. It is a very narrow tract, and only the resting-place of birds in their way from *Scandinavia*, and the farther north, the residence of numerous species. The rich marshes, in a climate mild from its situation between two seas, afford numbers of wholesome plants, the food of a remarkably fine breed of cattle. Besides the home consumption, these provinces send out annually thirty-two thousand head. The nobility do not think it beneath them to preside over the dairy: and their number of cows is princely. *M. De Rantzau* had not fewer than six hundred milch cows.

CIMBRIAN
DELUGE.

What the extent of this country might have been in very early times is unknown: it must have been prodigiously great, otherwise it never could have poured out that amazing number of people it did, in their eruption into *France*, when they were defeated by *Marius*, in 101 before CHRIST. Their army was computed to consist of three hundred thousand fighting men (including the *Teutoni*) besides women and children. About seven years before, they had suffered a great calamity from an inundation of the sea, which had destroyed great part of their country; and compelled the survivors, then crowded in the narrow *Chersonesus*, to apply to the *Romans* for other lands. *Tacitus* speaks of the vestiges of this once mighty people, in the lines, visible in his time, on each shore. I presume that the inundations to which this coast is subject from the sea, hath utterly destroyed every trace of them. The charts plainly point out their overwhelmed territories in *Juts-riff*, and the neighboring sand-banks. The first might have been the continuation of land from the end of *Jutland*, beginning at the *Skaw*, and running out into the North sea in form of a scythe, not very remote from land, and terminating a little south of *Bergen* in *Norway*, leaving between its banks and that kingdom a deeper channel into the *Baltic*.

THE SOUND.

The *Kattegate* lies between part of *Jutland* and the coast of *Sweden*: the last covered with isles innumerable. It is almost closed at the extremity, by the low *Danish* islands of *Seland* and *Funen*, which had in old times been (with *Sweden*) the seat of the *Suiones*. Between the first and the coast of *Sweden*, is the famous Sound, the passage tributary to the *Danes* by thousands of ships. These isles were of old called *Codonania* §, and gave to the *Kattegate* the name of *Sinus Codanus*. The proper *Baltic* seems to have been the *Mare Suevicum* of the antients; and the farthest part, the *Mare Sarmaticum*, and part of the *Mare Scythicum*. As a na-

* *Ptolem.* lib. ii. c. 11.

† *Plin. Nat. Hist.* lib. iv. c. 13.

§ *Mela*, lib. iii. c. 3. 8.

turalist, I must mention, that when LINNÆUS speaks of the *Mare Occidentale*, he intends the *Kattegatte*. Its greatest depth is thirty-five fathoms. It decreases as it approaches the Sound; which begins with sixteen fathoms, and near *Copenhagen* shallows to even four.

The Roman fleet, under the command of *Germanicus*, sailed, according to *Pliny*, round *Germany*, and even doubled the *Cimbricum Promontorium*, and arrived at the islands which fill the bottom of the *Kattegatte* *: either by observation or information, the Romans were acquainted with twenty-three. One they called *Gleffaria*, from its amber, a fossil abundant to this day on part of the south side of the *Baltic*. A Roman knight was employed by *Nero's* master of the gladiators, to collect, in these parts, that precious production, by which he came perfectly acquainted with this country †. I cannot suppose that the Romans ever settled in any part of the neighborhood, yet there was some commerce between them, either direct, or by the intervention of merchants. Many silver coins have been found at *Kivikke*, in *Schonen* in *Sweden*, of *Hadrian*, *Antoninus Pius*, *Commodus*, and *Albinus* ‡. Among the islands, *Pliny* makes *Norway* one, under the name of *Scandinavia incomptæ magnitudinis*, and *Baltia* another, *immensæ magnitudinis*, probably part of the same, and which might give name to the Sounds called the *Belts*, and to the *Baltic* itself. The geographer *Mela* had the justest information of this great water, which he describes with great elegance, ‘*Hac re mare (CODANUS SINUS) quod gremio littorum accipitur, nunquam latè patet, nec USQUAM MARI SIMILE verum aquis passim interfloentibus ac sæpe transgressis vagum atque diffusum facie amnium spargitur, qua littora attingit, ripis contentum insularum non longè distantibus, et ubique pæne tantundem, it angustum et par FRETO curvansque se subinde, longo supercilio inflexum est.*’ The different nations which inhabited its coasts shall hereafter be mentioned.

I would, like *Mela*, prefer giving to the *Baltic* the name of a gulph rather than a sea; for it wants many requisites to merit that title. It wants depth, having in no one place more than a hundred and ten fathoms. From the eastern mouth of the Sound to the isle of *Bornholm* it has from nine to thirty: from thence to *Stockholm*, from fifteen to fifty: and a little south of *Lindo*, sixty. It has in this course many sand-banks, but all in great depths of water. Between *Alands Haff*, amidst the great archipelago, the *Aland* isles, and the isle of *Osel* in the gulph of *Riga*, the depths are various, from sixty to a hundred and ten ||. Many fresh-water lakes exceed it in that respect.

VOYAGE OF THE
ROMAN FLEET.

THE BALTIC A
GULPH.
DEPTH.

* *Plin.* lib. ii. c. 67. lib. iv. c. 13.
Kivikenfe, p. 27.

† Lib. xxxvii. c. 3.

‡ *Forssenius de Monum.*

|| *Russian* and other charts.

NO TIDES.

It wants tides, therefore experiences no difference of height, except when the winds are violent. At such times there is a current in and out of the *Baltic*, according to the points they blow from; which forces the water through the Sound with the velocity of two or three *Danish* miles in the hour. When the wind blows violently from the *German* sea, the water rises in the several *Baltic* harbours, and gives those in the western part a temporary saltness: otherwise the *Baltic* loses that other property of a sea, by reason of the want of tide, and the quantity of vast rivers it receives, which sweeten it so much as to render it, in many places, fit for domestic uses. In all the *Baltic*, *Linnaeus* enumerates but three *fuci**, plants of the sea: in the gulph of *Bothnia*, which is beyond the reach of salt water, not one †.

NOT SALT.

FEW SPECIES OF FISH.

The fewness of species of fish in the *Baltic* is another difference between it and a genuine sea. I can enumerate only nineteen ‡ which are found in this vast extent of water: and may add one cetaceous fish, the Porpessé. No others venture beyond the narrow streights which divide the *Baltic* from the *Kattegate*; yet the great *Swedish Faunist* reckons eighty-seven belonging to his country, which is washed only by those two waters. Let me mention the Herring as a species which has from very early times enriched the neighboring cities. There was, between the years 1169 and 1203, a vast resort of *Christian* ships to fish off the isle of *Rugen*, the seat of the antient *Rugii*, insomuch that the *Danes* clothed themselves with scarlet and purple, and fine linen.

The *Hornsimpa*, or *COTTUS QUADRICORNIS*, *Faun. Suec.* N° 321, and the *SYNGNATHUS TYPHLE*, or Blind Pipe-fish, N° 377, are unknown in the *British* seas: the first seems peculiar to the gulph of *Bothnia*, and is a fish of singular figure, with four flat hornlike processes on the head ||.

LENGTH AND BREADTH OF THE BALTIC.

OF THE GULPH OF BOTHNIA.

The extent of the *Baltic* in length is very great. From *Helsingor*, where it properly begins, to *Cronstadt*, at the end of the gulph of *Finland*, is eight hundred and ten *English* sea miles. Its breadth, between *Saltwic*, in *Smaland*, and the opposite shore, two hundred and thirty-seven. The gulph of *Bothnia*, which runs due north, forms an extent almost equal to the first, being, from *Tornea* in *Lapland*, to

* <i>Flora Suec.</i>	† <i>Flora Lapp.</i>		
‡ Porpessé,	Striated Cod-fish,	Turbot,	Herring,
Sea Lamprey,	Viviparous Blenny,	Flounder,	Sprat,
Sturgeon,	Beardless Ophidion,	Salmon,	Little Pipe-fish,
Lannee,	Lump,	Gar-fish,	Shorter P.
Sword-fish,	Hornsimpa,	Smelt,	Blind P.

I find that the *Afinus Callarias* is common to the *Baltic* and our seas, therefore must be added to the list of *British* fish.

|| *Mus. Fr. Adolph.* i. 70. tab. xxxii. fig. 4.

the

the shore near *Dantzic*, not less than seven hundred and seventy-eight : an amazing space, to be so ill stocked with fishy inhabitants.

From the isle of *Rugen*, the course of the *Baltic* is strait and open, except where interrupted by the famous isle of *Gottland*, the place of rendezvous from whence the *Goths* made their naval excursions. In 811, on this island, was founded the famous town of *Wibury*, the great emporium of the north : it was, for ages, the resort of every Christian nation. The *English* long traded here, before they ventured on the distant voyage of the *Mediterranean*. It became an independent city, and made its maritime laws the standard of all *Europe* to the north of *Spain*. In 1361, *Waldemar III.* of *Denmark*, attacked, ravaged, and plundered it of immense riches ; all which perished at sea after they were shipped *. Its present inhabitants are husbandmen and fishermen, secure from the calamities of war by the happy want of exuberant wealth.

ISLE OF GOTT-
LAND.

Beyond *Stockholm* the *Baltic* divides into the gulphs of *Bothnia* and *Finland* : the first runs deeply to the north, and the country is composed chiefly of granite rock, or strewn over with detached masses of the same. Its greatest breadth is between *Gefle* and *Abo*, in *Finland*, where it measures a hundred and sixty-two miles : its greatest depth a hundred and ninety-five yards †. It terminates in *Lapland*, a country divided by the river *Tornea*, which runs navigable far up between a continued mountainous forest. It is supposed to have been peopled in the eleventh century by the *Finni* : a fact not easy to be admitted ; for the *Finni*, or *Fennones*, are a brawny race, with long yellow hair, and brown irides. The *Laplanders* are, on the contrary, small in body, have short black hair, and black irides. It is certain that a party of *Fins* deserted their native country, *Finland*, in the age before mentioned, rather than relinquish the brutality of heathenism. Their offspring remain converted, and in some measure reclaimed, between *Norway* and *Sweden* ‖ ; but are a most distinct race from the *Laplanders*, who possessed their country long before. In the ninth century, the hero *Regner* slew its king or leader in battle § : at that period it was in a savage state ; nor was its conquest attempted by *Sweden* till 1277, when *Waldemar* added it to his kingdom, and in vain attempted its conversion ¶. Scarcely two centuries have elapsed since it has sincerely embraced the doctrines of Christianity. In consequence of which, cultivation and civilization have so well succeeded in the southern parts, that many deserts are peopled, morasses drained, and the reason of the natives so greatly improved, that they have united with the *Swedes*, and even sent their representatives to the

LAPLAND.

* *Hist. Abregé de Nord.* i. 206.

† *Prof. Ritzius of Lund.*

‖ *Pb. Tr. Abr.* vii. part. iv.

§ *Hist. Abregé du Nord.* ii. 59.

¶ The same, p. 3.

House of Peasants in the national diet *. But these were at all times the most cultivated of this distinct race. They trained the Rein-deer to the sledge, domesticated it from its wild state, and made it the substitute for the Cow.

BIRDS.

Their country, which penetrates even to the Northern ocean, consists of savage mountains, woods, vast marshes, rivers, and lakes, the haunts of myriads of water-fowl, which resort here in summer to breed, free from the disturbance of mankind. LINNÆUS, the great explorer of these deserts, my venerated example! mentions them as exceeding in numbers the armies of *Xerxes*; re-migrating, with him, in autumn, eight entire days and nights, to seek sustenance on the shores and waters of more favorable climates †.

FISH.

Their lakes and rivers abound in fish; yet the number of species are few. These are the Ten-spined Stickle-back, *Br. Zool. iii. N° 130*; Salmon, *N° 143*, in great abundance, which force their way to the very heads of the furious rivers of *Tornea* and *Kiemi*, to deposit their spawn; Char, *N° 149*, are found in the lakes in great abundance; and Graylings, *N° 150*, in the rivers; Gwiniads, *N° 152*, are taken of eight or ten pounds weight; Pikes, *N° 153*, sometimes eight feet long; and Perch, *N° 124*, of an incredible size §; and the *Salmo Albula*, *Faun. Suec. N° 353*, closes the list of those of the *Lapland* lakes and rivers.

ALAND ISLES.

The mouth of the gulph of *Bothnia* is filled with a prodigious cluster of little islands and rocks, dangerous to mariners. *Aland* is the chief, an island of surprising rockiness, and with all the other aspects as if torn from the continent by some mighty convulsion. The gulph of *Finland* extends from thence due east, and has, on its northern coast, a chain of similar islands, and a few sprinkled over the channel. All the coast and all its isles are composed of red or grey granite; and all the coasts of *Sweden* are the same, mixed in places with sand-stones. *Finland* and *Carelia* are the bounds of the gulph on this side: *Livonia*, the granary of the north, and *Ingria*, on the other. These countries, with *Russia*, made part of the *European Scythia*, or *Sarmatia*; and this part of the *Baltic* has been sometimes styled *Mare Scythicum*, and *Mare Sarmaticum* ||. The gulph decreases in depth from sixty to five fathoms, as you advance towards *Cronstadt*, the great naval arsenal of *Russia*. From thence is twelve miles of shallow water to *Petersburg*, that glorious creation of PETER the GREAT; the inlet of wealth and science into his vast dominions, before his time inaccessible to the rest of *Europe*, unless by the tedious voyage of the *White sea*; and a country unknown, but by the report of the splendid barbarism of its tyrants. Peter was formed with a singular mixture of

GULPH OF FINLAND.

PETERSBURG.

* *Anderson*, ii. 419.

|| *Ptolemy*.

† *Amæn. Acad. iv. 570. Fl. Lap. 273.*

§ *Scheffer's Lapland.*

endowments for the purpose of civilizing a rude and barbarous people: his mind was pregnant with great designs, obstinate perseverance, and unrelenting severity in the exertion of punishment on all who dared to oppose the execution of his system for the good of the whole. A mind filled with the milkiness of human nature, would never have been able to deal with the savage uninformed *Russians*. Peter hewed his work into shape: for the last polish, Heaven formed another CATHERINE, the admiration of *Europe*, the blessing of an empire which forms at least one eleventh of the globe, extending from the northern point of *Nova Zemlja*, in the frozen latitude of near 78, to the influx of the *Terek* into the *Caspian* sea, in the warm latitude of about 43 and a half; or, to give it the shortest breadth, from the coast of the Frozen ocean, at the extremity of the country of the *Tschutki*, lat. 73, to the mouth of the *Aimak*, in the gulph of *Ochotz*, in lat. 54. Its length is still more prodigious, from *Petersburgh* as far as the *Asiatic* side of the straits of *Bering*.

In the following work, I have, by the assistance of that celebrated naturalist Doctor PALLAS, given a description of the Quadrupeds and Birds of this vast empire, as far as was compatible with my plan, which was confined between the highest known latitudes of the northern hemisphere, as low as that of 60. The remainder will be comprehended in the great design formed by the Imperial Academy, and executed by professors whose glory it is to prove themselves worthy of their illustrious and munificent patroness, under whose auspices they have pervaded every part of her extensive dominions in search of useful knowledge.

To *Petersburg*, this corner of the empire, is brought, as to a vast emporium, the commerce of the most distant parts; and from hence are circulated the *European* articles to supply even the remote *China*. The place of traffic is on the *Chinese* borders, at *Kjackta*, a town without women; for none are allowed to attend their husbands. By this route the furs of *Hudson's-Bay* find their way to warm the luxurious inhabitants of *Pekin*, the animals of the neighboring *Tartary* and *Siberia* being inadequate to the increased demand. The want of a maritime intercourse is no obstacle to this enterprising nation to the carrying on a trade with *India*. It has encouraged above a hundred *Banians*, all males, from *Multan*, to settle at *Astracan*; and their number is kept up by a supply of young unmarried relations from home. These support the most important trade of *Astracan*, by carrying through *Astrabad* to the inland parts of the *Mogal* empire. I stray a little from my plan; but it may be excused on account of the novelty of the relation, and because it points out a more southern inland road than was known in the middle ages, when the merchants went by the way of *Bachara* and *Samarcand* to the northern cities of *India*, *Candabar* and *Cabul*.

In

SARMATÆ.

In my return to the *German* sea, let me review the antient inhabitants of the *Baltic*. The wandering *Sarmatæ*, of *Scythian* descent, possessed all the country from lake *Onega* to the *Vistula*; and part of the vast *Hercynian* forest, famous of old for its wild beasts, occupied most of this country. Bisons with their great manes: Uri with their enormous horns, which the natives bound with silver and quaffed at their great feasts: the Alces, or Elk, then fabled to have jointless legs: and Wild Horses, were among the quadrupeds of this tract*. I smile at the description of certain birds of the *Hercynian* wood, whose feathers shone in the night, and often proved the guide to the bewildered traveller†. The resplendent plumage of the *Strix Nyctea*, the Snowy Owl, N° 121, might probably have struck the eye of the benighted wanderer, and given rise to the strange relation.

ENINGIA.

Eningia was the opposite shore, and the same with the modern *Finland*, inhabited by people of amazing savageness and squalid poverty; who lived by the chase, headed their arrows with bones, clothed themselves with skins, lay on the ground, and had no other shelter for their infants than a few interwoven boughs‡. They

OONÆ.

were then, what the people of *Terra del Fuego* are now. There is no certainty respecting the *Oonæ*; islanders, who fed, as many do at present, on the eggs of wild fowl and on oats||; but most probably they were the natives of the isles of *Aland*, and the adjacent archipelago; for *Mela* expressly places them opposite to the

HIPPOPODÆ.

Sarmatæ. We may add, that the *Hippopodæ* and *Panoti* might be the inhabitants of the northern part of the *Bothnian* gulph; the first fabled to have hoofs like horses, the last ears so large as to serve instead of cloaks. The *Hippopodæ* were certainly the same sort of people as the *Finni Lignipedes* of *Olaus*, and the *Skride Finnis* of *Ohtbere*. They wore snow-shoes, which might fairly give the idea of their being, like horses, hoofed and shod. As to the *Panoti*, they baffle my imagination.

The *Bothnian* and *Finland* gulphs seem to me to have been, in the time of *Tacitus*, part of his *Mare pigrum ac immotum*, which, with part of the *Hyperborean* ocean, really insulated *Scandinavia*, and which he places beyond the *Suiones*, or modern *Sweden*. *Pliny* gives, I suppose from the relation of *British* or other voyagers, to part of this sea, probably the most northern, the title of *Morimarusa*, or Dead Sea, and *Cronium*. The learned *Forster*, with great ingenuity, derives the word from the *Gaelic* and *Celtic* language. The first, from the *Welsh*, *môr*, sea, and *marw*, dead; the other from the *Irish*, *muir-croinn*, the coagulated, i. e. congealed sea. *Tacitus* adds to his account, that it was believed to encir-

* *Cæsar* Bell. Gall. lib. iv. *Plin.* lib. viii. c. 15.

† *Solinus*, c. 32. *Plin.* x. c. 47.

‡ *Tacitus* de Mor. Germ.

|| *Forster's* Obs. 96.

cle the whole globe, and that the last light of the setting sun continued so very vivid as to obscure the stars themselves. There is not a single circumstance of exaggeration in all this: every winter the gulph is frozen, and becomes motionless. Many instances may be adduced even of the *Baltic* itself being frozen*. The stars are frequently lost in the amazing splendor and various colors of the *aurora borealis*. The *Hilleviones*, an antient people of Sweden, styled *Scandinavia*, *alterum orbem terrarum*, and their descendants, long carolled the junction of the *Bothnian* gulph with the northern ocean, traditionally rehearsed in old *Swedish* songs. *Tacitus* uses the two last words to express the world surrounded by this sea. In the days of the geographer *Mela*, there certainly was a strong tide in this upper part of the *Baltic*; for, speaking of the islands off *Finland*, he says, "Quæ Sarmatis adversa sunt, ob alternos accessus recursusque pelagi, et quod spatia queis distant, modò operiuntur undis, modò nuda sunt; aliàs insulæ videntur, aliàs una et continens terra." With propriety, therefore, in another place, does he compare it to a streight, *par freto*, notwithstanding he was ignorant of its other entrance. Doctor *Pallas* most justly ascribes the formation of not only the *Baltic*, but its former communication with the *White Sea*, to the effects of a deluge. The whole intermediate country is a proof; the foundation being what is called the old rock, and that covered with variety of matter; such as beds of pebble and gravel, and fragments of granite, torn from the great mass. Parts of the channel which formed the insulation of *Scandinavia*, are the chain of lakes, from that of *Ladoga* to the *White Sea*, such as *Onega*, and others, often connected by rivers, and lying in a low country, filled with the proofs above-mentioned. This was the streight through which the tide poured itself from the *Hyperborean* ocean, and covered, at its flux, the islands described by *Mela*. This, like the other northern seas, was annually frozen over, and could be no obstacle to the stocking of *Scandinavia* with quadrupeds. There is no fixing the period in which this passage was obstructed. An influx of sand, or an earthquake, might close it up. As soon as this event took place, the *Baltic* felt the want of its usual feed: it lost the property of a sea; and, by a constant exhalation, from that time decreased in the quantity of water. Modern philosophers have proved the great loss it has sustained, and that it decreases from forty to fifty inches in a century: that, near *Pithea*, the gulph of *Bothnia* has retired from the land half a mile in forty-five years; and near *Lulea*, a mile in twenty-eight. Notwithstanding its present state, when we consider the accounts given by the antients, the old *Swedish* traditions, and the present vestiges of the former channel, we can, without any

ANTIENT
STREIGHTS BE-
TWEEN

THE BALTIC AND
WHITE SEA.

* *Forster's Obs.* 30.

force of fancy, give full credit to the insulated form of *Scandinavia*, given in one of *Cluverius's* maps *; which, he says, is drawn from the erroneous accounts of the antients.

SUIONES.

The *Suiones* possessed the modern *Sweden*, and extended even to the ocean, and were a potent naval power. Their ships were so constructed, with prows at each end, that they were always ready to advance. These people, in after times, proved, under the common name of *Nortmans*, the pest and conquerors of great part of southern *Europe*; their skill in maritime affairs fitting them for distant expeditions. In the sixth century they were called *Suethans*, and were famous for their cavalry. In their time, the Sable, N^o 30, was common in their country: *Jornandes*, therefore, observes, that notwithstanding they lived poorly, they were most richly cloathed: he also informs us, that they supplied the *Romans* with these precious furs, through the means of numbers of intervening nations †. *Scandinavia*, in that period, had got the name of *Scanzia*; and as it was then called an island, and by *Jornandes* ‡, a native of the country, there is all the reason to imagine, that the passage into the *Hyperborean* ocean was not in his time closed.

NORWAY.

THE NAZE.

After repassing the Sound, appear *Schonen*, *Halland*, and *Bobusfund*; *Swedish* provinces, bounded by the *Kattegate*. *Halland*, from some similitude of sound, is supposed to have been the seat of the *Hilleviones*, a most populous nation; perhaps the same with the *Suiones* of *Tacitus*; for beyond them he places the *Sitones*, or the country of *Norway*, who were a great naval people; as the historian says that they differed not from the *Suiones*, except in being under a female government. The promontory of the *Naze*, visible at eight or ten leagues distance, with the low land of *Bevenbergen* in *Jutland*, forms the entrance into the *German* sea. The *Bommel*, and the *Drommel*, high mountains to the east of it; and the high land of *Leff*, a vast mountain, gradually rising from the shore, to the west, are noted guides to mariners. It is reasonably supposed, that *Pliny* intended this vast region by his island of *Nerigon*, from whence, says he, was a passage to *Thule*. He speaks also of *Bergos*, which, from agreement of sound, is thought to be the present province of *Bergen*. The promontorium *Rubeas* is guessed to be the *North Cape*, between which and the *Cimbri*, *Philemon* § places the *Mare Morimarusa*, or the Dead Sea, so called from the clouded sky that usually reigned there.

Our first certain knowlege of the inhabitants of this country, was from the desolation they brought on the southern nations by their piratical invasions.

* At the end of his second vol. of *Germania Antiqua*.

† *Jornandes de Reb. Geticis*, c. iii.

‡ The same, c. iv.

§ As quoted by *Pliny*, lib. iv. c. 13.

NORMANS.

LXXII

Their country had, before that period, the name of *Nartmannaland*, and the inhabitants *Nortmans*; a title which included other adjacent people. *Great Britain* and *Ireland* were ravaged by them in 845; and they continued their invasion till they effected the conquest of *England*, under their leader, *Canute* the Great. They went up the *Seine* as far as *Paris*, burnt the town, and forced its weak monarch to purchase their absence at the price of fourteen thousand marks. They plundered *Spain*, and at length carried their excursions through the *Mediterranean* to *Italy*, and even into *Sicily*. They used narrow vessels, like their ancestors the *Sitones*; and, besides oars, added the improvement of two sails: and victualled them with salted provisions, biscuit, cheese, and beer. Their ships were at first small; but in after times they were large enough to hold a hundred or a hundred and twenty men. But the multitude of vessels was amazing. The fleet of *Harold Blaatand* consisted of seven hundred*. A hundred thousand of these savages have at once sallied from *Scandinavia*, so justly styled *Officina Gentium*, aut certe *velut vagina nationum*†. Probably necessity, more than ambition, caused them to discharge their country of its exuberant numbers. Multitudes were destroyed; but multitudes remained, and peopled more favorable climes.

Their king, *Olaus*, was a convert to Christianity in 994; *Bernard*, an *Englishman*, had the honor of baptizing him, when *Olaus* happened to touch at one of the *Scilly* islands. He plundered with great spirit during several years; and in 1006 received the crown of martyrdom from his pagan subjects. But religious zeal first gave the rest of *Europe* a knowledge of their country, and the sweets of its commerce. The *Hanse* towns poured in their missionaries, and reaped a temporal harvest. By the year 1204, the merchants obtained from the wise prince *Suer* every encouragement to commerce; and by that means introduced wealth and civilization into his barren kingdom. *England*, by every method, cherished the advantages resulting from an intercourse with *Norway*; and *Bergen* was the *emporium*. *Henry III.* in 1217, entered into a league with its monarch *Haquin*, by which both princes stipulated for free access for their subjects into their respective kingdoms, free trade and security to their persons. In 1269, *Henry* entered into another treaty with *Magnus*, in which it was agreed, that no goods should be exported from either kingdom except they had been paid for; and there is besides a humane provision on both sides, for the security of the persons and effects of the subjects who should suffer shipwreck on their several coasts.

COASTS.

This country extends above fifteen hundred miles in length, and exhibits a most wonderful appearance of coast. It runs due north to *Cape Staff*, the

* *Mallet's Introd.* i. 257.† *Jornandes*, c. 4.

SEA.

DYBRENDEN.

CHAIN OF ISLANDS.

TIDES.

RIVERS.

western point of *Sundmor*, then winds north-east to its extremity at the *North Cape*. High and precipitous rocks compose the front, with a sea generally from one to three hundred fathoms deep washing their base *. Multitudes of narrow creeks penetrate deep into the land, overshadowed by stupendous mountains. The sides of these chasms have depth equal to that of the adjacent sea; but in the middle is a channel called *Dybrendes*, i. e. deep courses, from fifty to a hundred fathoms broad, and of the disproportionable depth of four hundred †, seemingly time-worn by the strength of the current from the torrent-rivers which pour into them. Fish innumerable resort to their edges. These creeks are, in many places, the roads of the country; for the vallies which traverse it are often so precipitous as to be impervious, unless by water. Some, which want these conveniences, are left uninhabited by reason of the impossibility of conveying to and from them the articles of commerce.

Millions of islands, large and small, skerries, or rocks, follow the greatest part of this wondrous coast. The islands are rude and mountainous, and soar correspondent to the *Alps* of the opposite continent. Those of *Loeffort*, on the north side of the dreadful whirlpool *Maelstrom*, engraven by *Le Bruyn*, give a full idea of the nature of the coasts ‡. The sea near the islands is so deep and rocky, that the *Norwegian* kings caused vast iron rings to be fastened with lead § to the sides, to enable ships to moor in security, or to assist them in warping out. A few of the former give shelter to the fishermen and their small stock of cattle; the rest rise in columns of grotesque forms. On the outside of these natural counterescarpments, are multitudes of *haubroe*, or sea-breakers, longitudinal banks of sand, running north and south, from the distance of four to sixteen leagues from the continent, and from ten to fifteen fathoms below the surface of the water; the haunts of myriads of useful fish.

The tides off the *Naze*, and most of the coasts of *Norway*, are very inconsiderable. At the *North Cape*, the spring tides have been observed to rise to the height of eight feet one inch; the neap to six feet eight inches ||. Mr. *William Ferguson*, an able pilot, who had often the conduct of our fleets in the North sea, informed me, that on the *Naze*, and many other parts of *Norway*, the tides were hardly perceptible, except with strong westerly winds, when they rose two or three feet, and fell with the easterly winds.

Into the ends of most of the *Dybrendes* rush the furious rivers, or rather torrents, of the mountains; useless for navigation, but most singularly advantageous

* Pontoppidan, i.

† The same, i. 68.

‡ *Le Bruyn's Voyages*, i. tab. 1.§ *Olaus**Magnus, Gent. Septentr. lib. iii. c. xi.*|| Mr. Bayley, in *Phil. Transf.* lix. 270.

for the conveyance of the great article of commerce, the masts and timber of the country, from the otherwise inaccessible forests. The trees are cut down, and at present conveyed from some distance to the rivers, down which they are precipitated over rocks and stupendous cataracts, until they arrive at the *Lentzes* or booms *, placed obliquely in the stream in fit places. To them the owners of the timber resort; and, on paying a certain rate to the proprietors, receive their pieces, which are all marked before they are committed to the water; but numbers are injured or destroyed in the rough passage.

LENTZES.

The species which is of such great value to *Norway*, is the *Fyr* or *Fare*, our Scotch Pine, and the *Pinus Sylvestris* of *Linnaeus*. It grows in the driest places, and attains the vast age of four hundred years †; and is of universal use in the northern world. Such trees as are not destined for masts are squared, and arrive in *England* under the name of *Balk*: the rest are sawed on the spot, in hundreds of mills, turned by the torrents, and reach us in form of planks. An immense quantity of tar is made from the trees, and even from the roots, very long after they have been divided from the trunk. The *Gran*, *Pinus Abies*, or what we call *Norway Fir*, is in little esteem. Thousands are cut down annually by the peasants, who feed their cattle with the tender shoots. It is the tallest of *European* trees, growing to the height of a hundred and sixty feet. In winter, the branches are depressed to the ground with snow, and form beneath them the dens of wild beasts.

I must here mention the adventitious fruits, such as nuts and other vegetable productions, which are brought by the waves to these shores, those of *Feret*, and the *Orkneys*, from *Jamaica* and other neighboring parts ‡. We must have recourse to a cause very remote from this place. Their vehicle is the gulph-stream from the gulph of *Mexico*. The trade-winds force the great body of the ocean from the westward through the *Antilles* into that gulph, when it is forced backward along the shore from the mouth of the *Mississippi* to *Cape Florida*; doubles that cape in the narrow sea between it and *Cuba*, and from *Cape Florida* to *Cape Canaveral* runs nearly north, at the distance of from five to seven leagues from shore, and extends in breadth from fifteen to eighteen leagues. There are regular soundings from the land to the edge of the stream, where the depth is generally seventy fathoms; after that no bottom can be found. The soundings off *Cape Canaveral* are very steep and uncertain, as the water shallows so quick, that from forty fathoms it will immediately lessen to fifteen, and from that to four, or less; so that, without great care, a ship may be in a few minutes on shore. It must be observed, that, notwithstanding the gulph-stream in general:

EXOTIC FRUITS
FOUND ON THE
SHORES.

GULPH-STREAM.

* *Pontoppidan*, i. 93. tab. vii.† *Aman. Acad.* iv.‡ *Voy. Helbrides*.

is said to begin where soundings end, yet its influence extends several leagues within the soundings; and vessels often find a considerable current setting to the northward all along the coast, till they get into eight or ten fathom water, even where the soundings stretch to twenty leagues from the shore; but their current is generally augmented or lessened by the prevailing winds, the force of which, however, can but little affect the grand unfathomable stream. From *Cape Cannaveral* to *Cape Hatteras* the soundings begin to widen in the extent of their run from the shore to the inner edge of the stream, the distance being generally near twenty leagues, and the soundings very regular to about seventy fathoms near the edge of the stream, where no bottom can be afterwards found. Abreast of *Savannah* river, the current sets nearly north; after which, as if from a bay, it stretches north-east to *Cape Hatteras*; and from thence it sets east-north-east, till it has lost its force. As *Cape Hatteras* runs a great way into the sea, the edge of the stream is only from five to seven leagues distant from the cape; and the force and rapidity of the main stream has such influence, within that distance, over ships bound to the southward, that in very high foul winds, or in calms, they have frequently been hurried back to the northward, which has often occasioned great disappointment both to merchant ships and to men of war, as was often experienced in the late war. In *December 1754*, an exceeding good sailing ship, bound from *Philadelphia* to *Charlestown*, got abreast of *Cape Hatteras* every day during thirteen days, sometimes even with the tide, and in a middle distance between the cape and the inner edge of the stream; yet the ship was forced back regularly, and could only recover its lost way with the morning breeze, till the fourteenth day, when a brisk gale helped it to stem the current, and get to the southward of the Cape. This shews the impossibility of any thing which has fallen into the stream returning, or stopping in its course.

On the outside of the stream is a strong eddy or contrary current towards the ocean; and on the inside, next to *America*, a strong tide sets against it. When it sets off from *Cape Hatteras*, it takes a current nearly north-east; but in its course meets a great current that sets from the north, and probably comes from *Hudson's Bay*, along the coast of *Labrador*, till the island of *Newfoundland* divides it; part setting along the coast through the straits of *Bellefleur*, and sweeping past *Cape Breton*, runs obliquely against the gulph-stream, and gives it a more eastern direction: the other part of the northern current is thought to join it on the eastern side of *Newfoundland*. The influence of these joint currents must be far felt; yet possibly its force is not so great, nor contracted in such a pointed and circumscribed direction as before they encountered. The prevailing winds all over this part of the ocean are the west and north-west, and consequently

frequently the whole body of the western ocean seems, from their influence, to have what the mariners call a *set* to the eastward, or to the north-east by east. Thus the productions of *Jamaica*, and other places bordering on the gulph of *Mexico*, may be first brought by the stream out of the gulph, inveloped in the *sargasso* or alga of the gulph round Cape *Florida*, and hurried by the current either along the *American* shore, or sent into the ocean in the course along the stream, and then by the set of the stream, and the prevailing winds, which generally blow two-thirds of the year, wafted to the shores of *Europe*, where they are found *.

The mast of the *Tilbury* man-of-war, burnt at *Jamaica*, was thus conveyed to the western side of *Scotland*; and among the amazing quantity of drift-wood, or timber, annually flung on the coasts of *Iceland*, are some species which grow in *Virginia* and *Carolina* †. All the great rivers of those countries contribute their share; the *Alatamaha*, *Santee*, and *Roanok*, and all the rivers which flow into the *Chesapeake*, send down in floods numberless trees ‡; but *Iceland* is also obliged to *Europe* for much of its drift-wood; for the common pine, fir, lime, and willows, are among those enumerated by Mr. *Troille*; all which, probably, were wafted from *Norway*.

The mountains of *Norway* might prove a boundless subject of speculation to the traveller. Their extent is prodigious, and the variety of plants, animals, and fishes of the lakes, are funds of constant amusement. The silver mines, wrought ever since 1623, are sources of wealth to the kingdom, and afford the finest specimens of the native kinds yet known. Gold was found in a considerable quantity in 1697. *Christian V.* caused ducats to be coined with it; the inscription was the words of *Job*, VON MITTERNACHT KOMT GOLD, *out of the north comes GOLD* ||. Copper and iron are found in abundance; lead in less quantities: tin does not extend to this northern region. It is difficult to say which is the beginning of this enormous chain. In *Scandinavia* it begins in the great *Koelen* rock at the extremity of *Finmark*. It enters *Norway* in the diocese of *Drontheim*, bends westward towards the sea, and terminates at a vast precipice, I think, the *Heirefoss*, about three *Norwegian* miles from *Lister*. Another branch of this mountain divides *Norway* from *Sweden*, fills *Lapland*, and rises into

MOUNTAINS.

METALS.

* For this curious account, I am indebted to Doctor *Garden*, who, by his long residence in *Charlestown*, is extremely well acquainted with the subject.

† *Troille's Voy. to Iceland*, 47. ‡ Doctor *Garden*.

|| *Pontoppidan*, i. 179. *Museum Regium Havnæ*, pars ii. sect. 7. tab. xx. No 18.—With more truth, perhaps, our version has it, *out of the north cometh GOLD*.

the

the distinguished summits of *Horrikalero*, *Avafaxa*, and *Kittis*, and ends in scattered masses of granite, in the low province of *Finland*. It incloses *Scandinavia* in form of a horse-shoe, and divides it from the vast plains of *Russia*. The ancient name of this chain was *Sevo mons*, to this day retained in the modern name *Seveberg*. *Pliny* compares it to the *Riphaean* hills, and truly says, it forms an immense bay, even to the *Cimbrian* promontory *.

ROMANTIC
VIEWS.

The mountains and islands break into very grotesque forms, and would furnish admirable subjects for the pencil. Among the desiderata of these days, is a tour into those parts by a man of fortune, properly qualified, and properly attended by artists, to search into the great variety of matter which this northern region would furnish, and which would give great light into the history of a race, to which half *Europe* owes its population. Among the views, the mountains of the *Seven Sisters* in *Helgeland* †, and the amazing rock of *Forg-batten* ‡, rising majestically out of the sea, with its pervious cavern, three thousand ells ¶ long, and a hundred and fifty high, with the sun at times radiating through it, are the most capital. Not to mention the tops of many, broken into imaginary forms of towers and Gothic edifices, forts, and castles, with regular walls and bastions.

HEIGHTS OF
MOUNTAINS.

I agree with the *Comte De Buffon*, in thinking that the heights of the *Scandinavian* mountains, given by *Bishop Pontoppidan*, and *Mr. Browallius*, are extremely exaggerated §. They are by no means to be compared with those of the *Helvetian Alps*, and less so with many near the equator. The sober accounts I have received from my northern friends, serve to confirm the opinion, that there is an increase of height of mountains from the north towards the equatorial countries. *M. Ascanius*, professor of mineralogy at *Drontheim*, assures me, that from some late surveys, the highest in that diocese are not above six hundred fathoms above the surface of the sea; that the mountains fall to the western side from the distance of eight or ten *Norwegian* miles ¶; but to the eastern, from that of forty. The highest is *Dovre-fjel* in *Drontheim*, and *Tille* in *Bergen*. They rise slowly, and do not strike the eye like *Romsdale-born*, and *Hornalen*, which soar majestically from the sea. In *Sweden*, only one mountain has been properly measured to the sea. Professor *Ritzius* of *Lund*, acquaints me, that *Kinne-kulle* in *Westro-Gothia* is only eight hundred and fifteen *English* feet

* *Sevo mons ibi immensus, nec Riphaeis jugis minor, immanem ad Cimbrorum usque promontorium efficit sinum, qui Codanus vocatur. Lib. iv. c. 13.*

† *Pontoppidan*, i. 46. tab. iii.

‡ The same, i. 47. tab. iii.

¶ Of two *Danish* feet each.

§ *Epoques de la Nature*, Suppl. tom. vi. p. 136. edit. *Amsterdam*.

¶ Of 18,000 feet each.

above

above the lake *Wenern*, or nine hundred and thirty-one above the sea. He adds, the following have been only measured to their bases, or to the next adjacent waters: *Aorskata*, a solitary mountain of *Fæmtland*, about four or five *Swedish* miles from the highest *Alps*, which separate *Norway* and *Sweden*, is said to be six thousand one hundred and sixty-two *English* feet above the nearest rivers: *Swuckustol*, within the borders of *Norway*, four thousand six hundred and fifty-eight above lake *Famund*; and that lake is thought to be two or three thousand above the sea: and finally, *Sylfiællen*, on the borders of *Fæmtland*, is three thousand one hundred and thirty-two feet perpendicular, from the height to the base. *Pontoppidan* gives the mountains of *Norway* the height of three thousand fathoms: *Browallius* those of *Sweden* two thousand three hundred and thirty-three, which makes them nearly equal to the highest *Alps* of *Savoy*, or the still higher summits of the *Peruvian Andes*.

In *Finmark*, the mountains in some places run into the sea: in others recede far, and leave extensive plains between their bases and the water. Their extreme height is on the *Fiæll-ryggen*, *dorsum Alpium*, or *back of the Alps*, a name given to the highest course of the whole chain: the summits of which are clad with eternal snow. These are skirted by lower mountains, composed of hard sandy earth, destitute of every vegetable, except where it is mixed with fragments of rock, on which appear the *Saxifragæ* of several kinds; *Diapensia Lapponica*, Fl. Lapp. N° 88; *Azalea Procumbens*, N° 90; the *Andromeda Cærulea*, N° 164; and *Hypnoides*, N° 165, thinly scattered. Lower down are vast woods of Birch, N° 341, a tree of equal use to the *Laplanders*, and the northern *Indians* of *America*. On the lower *Alps* abound the *Rein-deer Lichen*, N° 437, the support of their only cattle; the *Dwarf Birch*, N° 342, the seeds of which are the food of the White Grouse beneath the snow, during the long and rigorous winter; the *Arbutus Alpina*, N° 161; and *Arbutus Uva Ursa*, N° 162; and, finally, the *Empetrum Nigrum*, or *Black Heath Berries*, used by the *Laplanders* in their ambrosial dish the *Kappisfålmas* *.

The *Scotch Pine*, N° 346, and *Norway Fir*, N° 347, form the immense forests of *Lapland*, associated with the Birch: the Pine affects the dry, the Fir the wet places, and grow to a vast size; but, being inaccessible, are lost to the great uses of mankind. On their northern sides they are almost naked, and deprived of boughs by the piercing winds; the wandering *Laplander* remarks this, and uses it as a compass to steer by, amidst these wilds of wood. Whole tracts are oft-times fired by lightning; then prostrated by the next storm. The natives make, of the under part of the wood (which acquires vast hardness by length of time) their snow-shoes; and

* Fl. Lapp. p. 103.

FINMARK.

PLANTS.

form their bows for shooting the squirrel with pieces united with glue, made from the skin of the perch. Their fragile boats are formed of the thinnest boards: their ropes of the fibrous roots: and finally, the inner bark, pulverized and baked, is the substitute for bread to a people destined to this rigorous climate. These three trees, the *Dwarf Birch*, N° 341, the *Alder*, N° 340, and not less than twenty-three species of Willows, form the whole of the trees of *Lapland*. Every other *Swedish* tree vanishes on approaching that country.

There is a great analogy between the plants of these northern *Alps*, and those of the *Scottish Highlands*. A botanist is never surprized with meeting similar plants on hills of the same height, be their distance ever so great. It may be remarked, that out of the three hundred and seventy-nine perfect plants which grow in *Lapland*, two hundred and ninety-one are found in *Scotland*; and of the hundred and fifty cryptogamous, ninety-seven are to be met with in *North Britain*.

QUADRUPEDS OF
SCANDINAVIA.

The *Alps*, the woods, and marshes of the vast region of *Scandinavia* (for I will consider it in the great) give shelter to numbers of quadrupeds unknown to *Britain*. Those which brave the severity of the extreme north of this country are distinguished by the addition of the *Lapland* name. The Elk, N° 3 of this Work, is found in many parts: the Rein, *Godde*, N° 4, is confined to the chilliest places: the Wolf, *Kumpi*, N° 9, is a pest to the whole: the Arctic Fox, *Njal*, N° 10, skirts the shores of all the northern regions: the Cross Fox, *Raude*, N° 11. β, and the Black Fox, N° 11. α. is scattered every where: the Lynx, *Albos* *, N° 15, inhabits the thickest woods: the Bear, *Guouzhia*, N° 20, and Glutton, *Gjeed'k*, N° 21, have the same haunts: the Sable, N° 30, which continued in *Lapland* till the middle of the last century, is now extinct: the Lesser Otter, or Mænk, of the *Swedes*, is confined to *Finland*: the Beaver, *Majæg*, N° 90, is still found in an unsociable state in several parts: the Flying Squirrel, p. 124, the *Orava* of the *Finlanders*, is found in their forests †, and those of *Lapland*: the Lemmus, *Lumenik*, p. 136, is at seasons the pest of *Norway*, issuing like a torrent from the *Koelen* chain: The Walrus, *Morsb*, N° 71, is sometimes found in the *Finmark* seas: the Harp Seal, *Dælja*, N° 77, the Rough Seal, N° 74, the Hooded, *Oanide?* N° 76, and the Little Seal, *Hist. Quad.* ii. N° 386, omitted by me in this Work, inhabit

* I have no proof of this but the name. The *Lynx* inhabits *Norway* and *Sweden*, and all the woody parts of *Siberia*; a circumstance I omitted in p. 50, of this Work. I scarcely know whether I should apologize for the omission of the Fitcher, *Hist. Quad.* i. N° 195; the *Musfela Putorius*, N° 16, *Faun. Suec.* LINNÆUS speaks with uncertainty of its being found in *Scania*, and that is a latitude rather too far south for my plan.

† See Mr. *Gabriel Bensdorff's* account of the animals of *Finland*, p. 24.

the same place *. The last, says Bishop Gunner, is eaten salted, not only by the Laplanders, but by the better sort of people in *Finmark*.

Of animals found in *Britain*, the Fox, *Ruopsök*, N° 11; Pine Martin, *Nette*, N° 27; Ermine, *Boaid* †, N° 26; Weasel, *Seibush*, N° 25; Otter, *Zhiconares*, N° 34; Varying Hare, *Njaumel*, N° 37; Common Squirrel, *Orre*, p. 122. A; Mouse, N° 60; Field Mouse, N° 61; Water Rat, N° 59; and the Shrew, *Vandes* and *Ziebak*, N° 67, are seen as high as *Finmark*: the Common Seal, *Nuorrosh*, N° 72, and the Great Seal, N° 73, also frequent the shores. All the other quadrupeds, common to *Scandinavia*, cease in *Norway*, and some even in *Sweden*. *Scandinavia* received its animals from the east; but their farther progress was prevented by the intervention of the North sea between that region and *Britain*. Our extinct species, the Bear, the Wolf, and the Beaver, came into this island, out of *Gaul*, before our separation from the continent. Some of the northern animals never reached us: neither did the north ever receive the Fallow Deer, *Br. Zool.* N° 7; the Harvest Mouse, N° 29; the Water Shrew, N° 33; nor yet the Brown Rat, N° 57, of this Work; notwithstanding it familiarly goes under the name of the *Norway* ‡.

This great tract has very few birds which are not found in *Britain*. We may except the Collared Falcon, p. 222. G; the *Scandinavian* Owl, p. 237; Rock Crow, p. 252. F; Roller, p. 253; Black Woodpecker, p. 276; Grey-headed, p. 277; Three-toed, N° 168; the *Rehusak* Grouse, p. 316. B; and the Hazel Grouse, p. 316. F. The *Ortolan*, p. 367. D; the Arctic Finch, p. 379. A; and the Lulea F. p. 380. B. The Grey Redstart Warbler, p. 417. C; the Blue Throat W. p. 417. E; Bogruth W. p. 419. I; Fig-eater, 419. K; and Kruka W. p. 422. U. All the cloven-footed water-fowl, except the Spoon-bill, p. 441. A; the Crane, p. 453. A; White and Black Storks, p. 455, 456. C. D; *Finmark* Snipe, p. 471. D; Striated Sandpiper, N° 383; Selninger, p. 480. C; Waved, p. 481. E; Shore, p. 481. F; Wood, p. 482. G; *Alwargrim* Plover, N° 398; and *Alexandrine*, p. 488. B. And all the web-footed kinds, except the Harlequin Duck, N° 490, and *Lapmark*, p. 576. M. are common to both countries; but during summer, Fieldfares, Redwings, Woodcocks, and most of the water-fowl, retire from *Britain* into *Scandinavia*, to breed in security: and numbers of both land and water-fowl quit this frozen country during winter, compelled, for want of food, to seek a milder climate.

BIRDS.

* Consult *Leems Lapm.* 214, 215, 216. Also for the Mouse, &c. which want the *Lapland* names.

† *Leems*, 220.

‡ It is a native of the *East-Indies*. See *Hist. Quad.* ii. N° 44.

CURIOUS FISHES.

The fishes of this extensive coast amount to only one hundred and eleven, and are inferior in number to those of *Britain* by twenty-eight. The species of the North Sea which differ from the *British*, are not numerous. The depth of water, and the forests of marine plants which cover the bottom of the *Norwegian* seas, are assuredly the cause of the preference of certain kinds, in their residence in them. Infinite numbers of rare *Vermes*, *Shells*, *Lithophytes*, and *Zoophytes*, are found there, several of which, before their discovery by Bishop *Pontoppidan*, were the supposed inhabitants of only the more remote seas*. Among the fishes which have hitherto shunned our shores, are the *Raia Clavata*, *Muller*, N° 309; *Squalus Spinax*, 312†; *Sq. Centrina*, 313, which extends to the *Mediterranean*; *Chimera Monstrosa*, 320, a most singular fish; *Sygnathus Typhle*, and *Æquareus*, 324, 328; the *Regalecus Glesne*, 335, *Ascan.* Icon. tab. xi.; *Gadus Brosme*, 341; *G. Dypterygius*, or *Byrke-lange*, 346; *Blennius Raninus*, & *Fuscus*, 359, 360; *Echeneis Remora*, 361; *Coryphæna Novacula*, & *Rupestris*, 362, 363; *Gobius Jozo*, 365; *Pleuronectes Cynoglossus*, *Limanda*, & *Linguatula*, 372, 375, 377; *Sparus Erythrinus*, 380; *Labrus Suillus*, 381; *Perca Norvegica*, and *Lucio-perca*, 390, 391; *Scomber Pelagicus*, 398; *Silurus Asotus*, 404; *Clupea Villofa*, 425.

THOSE OF USE.

These are not the fishes of general use. Providence hath, in these parts, bestowed with munificence the species which contribute to the support of mankind; and made thereby the kingdom of *Norway* a coast of hardy fishermen. The chain of islands, and the shores, are the populous parts. It is the sea which yields them a harvest; and near to it stand all the capital towns: the staples of the produce of the ocean on one hand, and of the more thinly inhabited mountains on the other. The farther you advance inland, the less numerous is the race of man.

HERRINGS.

The Herring, the Cod, the Ling, and the Salmon, are the maritime wealth of this country. The Herring has two emigrations into this sea: the first is from *Christmas* to *Candlemas*, when a large species arrives, preceded by two species of *Whales*, who, by instinct, wait its coming. The fishermen post themselves on some high cliff, impatiently waiting for the cetaceous fish, the harbingers of the others. They look for them at the moon *Torre*, or the first new one after *Christmas*, and the moon *Gio*, which immediately follows.

These Herrings frequent the great sand-banks, where they deposit their spawn. They are followed by the Spring Herrings, a lesser fish, which approach much nearer to the shore; after which arrive the Summer Herring, which almost literally fill every creek: the whole fishery is of immense profit. From *January* to *October*,

* See the Plates in *Pontoppidan's Hist. Norway*.

† In the *British Zoology*, iii. N° 40. the trivial *Spinax* is inserted instead of *Acanthias*.

1752, were exported, from *Bergen* alone, eleven thousand and thirteen lasts; and it was expected that as many more would be shipped off before the expiration of the year. The Herrings which visit this coast are only part of the vast northern army which annually quits the great deeps, and gives wealth and food to numbers of *European* nations.

THE Cod yields another fishery of great profit. They first arrive immediately after the earliest Herrings, and grow so pampered with their fry, that they reject a bait; and are taken in vast nets, which are set down in fifty or seventy fathom water, and taken up every twenty-four hours, with four or five hundred great fish entangled in them. As the Herrings retire, the Cod grows hungry; and after that is taken with hook and line, baited with Herring. In more advanced season, other varieties of Cod arrive, and are taken, in common with Turbot and other fish, with long lines, to which two hundred short lines with hooks are fastened: the whole is sunk to the bottom; its place is marked by a buoy fastened to it by another line of fit length. The extent of the Cod-fishery may be judged of on hearing that 40,000 *tender*, of four bushels each, of *French* and *Spanish* salt, are annually imported into *Bergen* for that purpose only.

The Ling is taken on the great sand-bank during summer, by hook and line, and, being a fish noted for being capable of long preservation, is much sought after for distant voyages.

The Salmon, a most universal northern fish, arrive in the *Norwegian* rivers, and vast quantities are sent, smoke-dried or pickled, into various countries.

The præfecture of *Nordland*, is the farthest part of the kingdom of *Norway*. In it is the district of *Helgeland*, remarkable for that uncommon genius, *Oëtter*, or *Obthere*, who, in a frozen climate, and so early as the ninth century, did shew a passion for discovery, equal perhaps with that of the present. His country was at that time the last in the north which had the least tincture of humanity. In the year 890 he was attracted by the fame of our renowned ALFRED. He visited his court, and related to him his voyages. He told the monarch that he was determined to prove if there was any land beyond the deserts which bounded his country. It appears that he sailed due north, and left, on his starboard side, a waste, the present *Finmark*, occasionally frequented by the *Finnas*, or wandering *Laplanders*, for the sake of fishing and fowling. He went as far as the *Whale-fishers* usually ventured: a proof that the men of *Norway* practised that fishery many centuries before the *English*. He doubled the *North Cape*, and entered the *Cwen Sea*, or *White Sea*, and even anchored in the mouth of the *Dwina*. He was to these parts what *Columbus* was to *America*: but the knowledge of this country was lost for centuries after the days of *Oëtter*. He mentioned the *Seride Finnas*, who lived to the north-west of the

Cod.

Ling.

SALMON.

NORDLAND.

OF OËTHER.

the *Cwen* Sea, and who wore snow-shoes. The country about the *Dwina* was well inhabited by a people called *Beormas*, far more civilized than the *Finns*. The map attending *ALFRED's Orosius* places them in the country of the *Samoieds*, a race at present as uncultivated as mankind can be: we therefore must suppose those *Beormas* to have been *Russians*. *Oeher* says, that in this sea he met with Horse-Whales (*Walruses*) and produced to the prince specimens of their great teeth, and of thong-ropes made of their skins; a mark of his attention to every thing curious which occurred to him *.

NORWEGIANS
A FINE RACE.

LONGEVITY.

I must not leave *Norway* without notice of its chief of animals, Man. *Scandinavia*, in the course of population, received its inhabitants by colonies of hardy *Scythians*, who, under the name of *Sarmatians*, extended themselves to the coasts of the *Baltic*. In after-times their virtue was exalted by the arrival of their countryman, *Odin*, and the heroes he settled in every part of the country. The severity of the climate has not checked the growth, or distorted the human form. MAN here is tall, robust, of just symmetry in limbs, and shews strongly the human face divine. Their hair is light: their eyes light grey. The male peasants of the mountains are hairy on their breasts as Bears, and not less hardy: active in body: clear and intelligent in their minds. Theirs certainly is length of days; for out of six thousand nine hundred and twenty-nine, who died in 1761, in the diocese of *Christiana*, three hundred and ninety-four lived to the age of ninety; sixty-three to that of a hundred; and seven to that of a hundred and one †. The *Norwegians* justly hold themselves of high value; and slightly call their fellow-subjects, the *Danes*, *Jutes* ‡. The *Danes* tacitly acknowledge the superiority, by composing almost their whole army out of these descendants of the all-conquering *Normans*.

I shall here supply an omission in my account of the *Scandinavian* antiquities, p. xxxvi. by mentioning the famous tomb, about seven *Swedish* yards long and two broad, found at *Kivike*, a parish of *Sehonen* in *Sweden*, in the centre of a vast tumulus of round stones. It was oblong, and consisted of several flat stones, the inside of which is carved with figures of men and animals, and the weapons of the age, axes and spears heads. A figure is placed in a triumphal car; cornets seem sounding: captives with their hands bound behind, guarded by armed men; and figures, supposed to be female, form part of the conquered people. It is supposed that the *Roman* fleet made an accidental descent here, had a successful skirmish with the natives, might have lost their leader, and left this mark of their victory amidst the

* The Translation of *Orosius*, by the Hon. Daines Barrington, p. 9, &c. and *Hackluyt*, i. 4.

† *Phil. Transf.* vol. lxx. 117.

‡ *Lord Malesworth's Account of Denmark*, 25.

barbarous conquered. The tomb had been broken open by the country people, and whatsoever it might have contained was stolen away and lost*.

Within the *Arctic* circle, begins *Finmark*, a narrow tract, which winds about the shores eastwards, and bends into the *White Sea*: a country divided between *Norway* and *Russia*. The view from the sea is a flat, bounded, a little inland, by a chain of lofty mountains covered with snow. The depth of water off the shore is from a hundred to a hundred and fifty fathoms †. The inhabitants quit their hovels in winter, and return to them in the summer: and, in the middle of that season, even the *Alpine Laplanders* visit these parts for the sake of fishing; and, like the antient *Scythians*, remove with their tents, their herds, and furniture, and return to their mountains in autumn ‡. Some of them, from living near the sea, have long been called *Sia Finni*, and *Sae Lappernes*.

In this country begins instantly a new race of men. Their stature is from four to four feet and a half: their hair short, black, and coarse: eyes transversely narrow: irides black: their heads great: cheek-bones high: mouth wide: lips thick: their chests broad: waists slender: skin swarthy: shanks spindle ‖. From use, they run up rocks like goats, and swarm trees like squirrels: are so strong in their arms that they can draw a bow which a stout *Norwegian* can hardly bend; yet lazy even to torpidity, when not incited by necessity; and pusillanimous and nervous to an hysterical degree. With a few variations, and very few exceptions, are the inhabitants of all the *Arctic* coasts of *Europe*, *Asia*, and *America*. They are nearly a distinct species in minds and bodies, and not to be derived from the adjacent nations, or any of their better-proportioned neighbors.

The seas and rivers of *Finmark* abound with fish. The *Alten* of *West Finmark*, after a gentle course through mountains and forests, forms a noble cataract, which tumbles down an immense rock into a fine basin, the receptacle of numbers of vessels which resort here to fish or traffic for Salmon §. The *Tana*, and the *Kola* of the extreme north swarm with them. In the *Alten* they are taken by the natives in weirs built after the *Norwegian* model; and form, with the merchants of *Bergen*, a great article of commerce. These fisheries are far from recent: that on the *Kola* was noted above two centuries ago for the vast concourse of *English* and *Dutch*, for the sake of the fish-oil and Salmon ¶.

The most northern fortress in the world, and of unknown antiquity ††, is *Ward-*

FINMARK.

SALMON FISHERIES.

WARDHUSES.

* See Mr. *Forsenius's* curious dissertation on this antiquity, printed at *Lund*, 1780.

† *Auth. Jenkinson's Voy. in Hackluyt*, i. 311. ‡ *Leems*, 169. § *Scheffer*, 12, and *Lin. Faun. Suec.* 1. ¶ *Leems*, 342. ¶ *Hackluyt*, i. 416. †† *Torſæi Hiſt. Norwegia*, i. 96.

houses,

buys, situated in a good harbour, in the isle of *Wardoe*, at the extremity of *Finmark*; probably built for the protection of the fishing trade, the only object it could have in this remote place.

SIR HUGH WIL-
LOUGHBY.

A little farther eastward, in *Muscovitch Finmark*, is *Arzina*, noted for the sad fate of that gallant gentleman, Sir *Hugh Willoughby*, who, in 1553, commanded the first voyage on the *discovery by sea* of *Muscovia*, by the north-east; a country at that time scarcely known to the rest of *Europe*. He unfortunately lost his passage, was driven by tempests into this port, where he and all his crew were found the following year frozen to death. His more fortunate consort, *Richard Chancellor* captain and pilot major, pursued his voyage, and renewed the discovery of the *White Sea*, or *Bay of St. Nicholas*; a place totally forgotten since the days of *Oether*. The circumstances attending his arrival, exactly resemble those of the first discoverers of *America*. He admired the barbarity of the *Russian* inhabitants: they in return were in amaze at the size of his ship: they fell down and would have kissed his feet; and when they left him spread abroad the arrival of 'a strange nation, of singular gentleness and courtesie *.' He visited in sledges the court of *Basilowitz II.* then at *Moscow*, and layed the foundation of immense commerce to this country for a series of years, even to the remote and unthought-of *Persia*.

NORTH CAPE.

I shall take my departure from the extreme north of the continent of *Europe*, or rather from its shattered fragments, the isle of *Maggeroe*, and other islands, which lie off the coast, in lat. 71. 33. At the remote end of *Maggeroe* is the *North Cape*, high and flat at top, or what the sailors call *Table-land* †. These are but the continuation of the great chain of mountains which divides *Scandinavia*, and sinks and rises through the ocean, in different places, to the *Seven Sisters*, in about lat. 80. 30, the nearest land to the pole which we are acquainted with.

CHERIE ISLAND.

Its first appearance above water, from this group, is at *Cherie Island*, in lat. 74. 30. a most solitary spot, rather more than midway between the *North Cape* and *Spitzbergen*, or about a hundred and fifty miles from the latter. Its figure is nearly round: its surface rises into lofty mountainous summits, craggy, and covered with perpetual snow: one of them is truly called *Mount Misery*. The horror of this isle to the first discoverers must have been unspeakable. The prospect dreary, black, where not hid with snow, and broken into a thousand precipices. No sounds but of the dashing of the waves, the crashing collision of floating ice, the discordant notes of myriads of sea-fowl, the yelping of *Arctic Foxes*, the snorting of the *Walruses*, or the roaring of the *Polar Bears*.

* *Hackluyt*, i. 246.

† See a view of these islands in *Phil. Trans.* vol. lix. tab. xiv.

S P I T Z B E R G E N.

LXXXI

This island was probably discovered by *Stephen Bennet* in 1603*, employed by Alderman *Cherie*, in honor of whom the place was named. The anchorage near it is twenty and thirty fathoms. He found there the tooth of a *Walrus*, but saw none of the animals, their season here being past: this was the 17th of *August*. Encouraged by the hopes of profit, *Bennet* made a second voyage the next year, and arrived at the island the 9th of *July*; when he found the *Walruses* lying huddled on one another, a thousand in a heap. For want of experience, he killed only a few; but in succeeding voyages the adventurers killed, in 1606, in six hours time, seven or eight hundred; in 1608, nine hundred or a thousand in seven hours; and in 1610, above seven hundred. The profit, in the teeth, oil, and skins, was very considerable†; but the slaughter made among the animals frightened the survivors away, so that the benefit of the business was lost, and the island no more frequented. But from this deficiency originated the commencement of the *Whale-fishery* by the *English*.

WALRUSES.

It is remarkable that this island produces excellent coals‡; yet none are known nearer than the diocese of *Aggerhuys*, in the south of *Norway*, and there in very small quantities. Lead ore is also found, both in *Cherie Island* and a little one adjacent, called *Gull Island*||.

COALS.

LEAD.

About a hundred and fifty miles almost due north, is *South Cape*, north lat. 76. 30, the extreme southern point of *Spitzbergen*, the largest of the group of frozen islands which go under that name, or *New Groenland*. From this to *Verlegan-hook*, north lat. 80. 7, the northern extremity, is above three hundred miles; and the greatest breadth of the group is from *Hackluyt's Headland* to the extreme east point of *North Eastland*, comprizing from 9. to near 24. east longitude. The shores are ragged and indented. A very deep bay runs into the east side from south to north; and a large trifurcated one from north to south. *Stat's Forland* is a large island rent from the southern part of the east side. *North Eastland* is divided from the north-east side by the *Waygat* and *Hinlopen* straits, usually blocked up with ice, and so shallow as to be, in one part, only three fathoms deep§. The long isle of *King Charles* lies parallel to the west side. At the southern end is *Black Point*; the coast high, black, and inaccessible; in parts seeming soaring above the clouds; and the interjacent vallies filled with ice and snow. *Fair Foreland*, or *Vogel-hook*, is the northern headland, made by sailors. And due north of it, at the western point of *Spitzbergen*, is the small lofty isle of *Hackluyt's Headland*, another object of the mariners search.

SPITZBERGEN.

To the north of the great group is *Moffen's Isle*, in lat. 80, opposite to the mouth of *Leifde* bay. This island is very low, and suspected to be a new creation,

MOFFEN'S ISLE.

* *Purchas*, iii. 566.

† The same, pp. 560. 565.

‡ The same, 564.

|| The same, 558. 564.

§ *Barrington's Miscel.* 35.

↓

by

by the meeting of the streams from the great ocean, rushing along the west side of *Spitzbergen*, and through the *Waygat*, and forcing up the gravelly bottom of this shallow part, where the lead touches the bottom at from two to five fathoms water, at half a mile from its western side *.

LOW ISLAND.
BASALTIC.

PLANTS.
ANIMALS.

BIRDS.

DRIFT-WOOD.

To the eastward of this is another low island, almost opposite to the mouth of the *Waygat*: it is remarkable for being part of the *Basaltic* chain, which appears in so many places in the northern hemisphere. The columns were from eighteen to thirty inches in diameter, mostly hexagonal, and formed a most convenient pavement. The middle of the isle was covered with vegetables, Mosses, Sorel, Scurvy Grass, and *Ranunculuses* in bloom on *July* 30th. Of quadrupeds, the Reindeer fattened here into excellent venison; the *Arctic* Fox; and a small animal larger than a Weasel, with short ears, long tail, and spotted with black and white, were seen. Small Snipes, like Jack Snipes; Ducks, then hatching; and Wild Geese feeding, helped to animate this dreary scene †.

The beach was formed of an antient aggregate of sand, whale-bones, and old timber, or drift-wood. Fir-trees seventy feet long, some torn up by the roots, others fresh from the axe, and marked with it into twelve feet lengths, lay confusedly sixteen or eighteen feet above the level of the sea, intermixed with pipe-staves, and wood fashioned for use; all brought into this elevated situation by the swell of the furious surges.

The appearance of drift-wood is very frequent in many parts of these high latitudes: in the seas of *Greenland*, in *Davis's* freights, and in those of *Hudson*; and again on the coasts of *Nova Zemlja*. I have only two places from whence I can derive the quantity of floating timber which appears on the coast of *Nova Zemlja* and these islands: the first is from the banks of the *Oby*, and perhaps other great rivers, which pour out their waters into the Frozen ocean. In the spring, at the breaking up of the ice, vast inundations spread over the land, and sweep away whole forests, with the aid of the vast fragments of ice; these are carried off, rooted up, and appear entire in various places. Such as are found marked into lengths, together with pipe-staves, and other fashioned woods, are swept by the *Norwegian* floods out of the rivers, on the breaking of a *lentze* ‡, a misfortune which sometimes happens, to the bankruptcy of multitudes of timber-merchants. At such times not only the trees which are floating down the torrents, but the saw-mills, and all other places in which business is carried on, undergo the same calamity; and the timber, in whatsoever form it happens to be, is forced into the ocean, and conveyed by tides or tempests to the most distant parts of the north.

* *Phips*, 54.

† The same, 58.

‡ *Purchas*, iii. 527.

Let no one be staggered at the remoteness of the voyage: I have before shewn instances, but from a contrary course, from west to east. Part of the masts of the *Tilbury*, burnt at *Jamaica*, was taken up on the western coast of *Scotland*; and multitudes of seed or fruits of the same island, and other hot parts of *America*, are annually driven on shore, not only on the western side of *Scotland* †, but even on those of more distant *Norway* ‡, and *Iceland*.

The islands of the *Seven Sisters*, last of known land, lie due north from *North-Eastland*: the extreme point of the most remote is in lat. 80. 42. They are all high primæval isles: from a high mountain on the farthest, the hardy navigators of 1773 had a sight of ten or twelve leagues of smooth unbroken ice to the east and north-east, bounded only by the horizon; and to the south-east certain land laid down in the *Dutch* maps. Midway between these islands and *North-Eastland*, Lord *Mulgrave*, after every effort which the most finished seaman could make to accomplish the end of his voyage, was caught in the ice, and was near experiencing the unhappy fate of the gallant *Englishman*, Sir *Hugh Willoughby*, who was frozen in 1553, with all his crew, in his unhappy expedition.

VOYAGE BY
LORD MULGRAVE,
IN 1773.

The scene, divested of the horror from the eventful expectation of change, was the most beautiful and picturesque:—Two large ships becalmed in a vast basin, surrounded on all sides by islands of various forms: the weather clear: the sun gilding the circumambient ice, which was low, smooth, and even; covered with snow, excepting where the pools of water on part of the surface appeared crystalline with the young ice ¶: the small space of sea they were confined in perfectly smooth. After fruitless attempts to force a way through the fields of ice, their limits were perpetually contracted by its closing; till at length it beset each vessel till they became immoveably fixed §. The smooth extent of surface was soon lost: the pressure of the pieces of ice, by the violence of the swell, caused them to pack; fragment rose upon fragment, till they were in many places higher than the main-yard. The movements of the ships were tremendous and involuntary, in conjunction with the surrounding ice, actuated by the currents. The water shoaled to fourteen fathoms. The grounding of the ice or of the ships would have been equally fatal: the force of the ice might have crushed them to atoms, or have lifted them out of the water and overfet them, or have left them suspended on the summits of the pieces of ice at a tremendous height, exposed to the fury of the winds, or to the risque of being dashed to pieces by the failure of their frozen dock ¶. An

* P. 21. of this Work.
Norvegica, 477.

† *Voy. to the Hebrides*.

‡ *Amæn. Acad. vii. Rariora*

¶ *Phips Voy. tab. iv.*

§ Same, tab. iii.

¶ See these distressful situations in tab. B. of *Fr. Marten's Voyage*, and *Gerard le Ver, Voy. au Nord*, p. 19, edition 1606.

attempt was made to cut a passage through the ice; after a perseverance worthy of *Britons*, it proved fruitless. The commander, at all times master of himself, directed the boats to be made ready to be hauled over the ice, till they arrived at navigable water (a task alone of seven days) and in them to make their voyage to *England*. The boats were drawn progressively three whole days*. At length a wind sprung up, the ice separated sufficiently to yield to the pressure of the full-sailed ships, which, after laboring against the resisting fields of ice†, arrived on the 10th of *August* in the harbor of *Smeeringberg*, at the west end of *Spitzbergen*, between it and *Hackluyt's Headland*.

It was the hard fortune of Lord *Mulgrave*, at this season, to meet with one of those amazing shoals of ice which cover, at times, these seas, for multitudes of leagues. He made the fullest trial, from long. 2 to 21 east, and from about lat. 80. 40, as low as about 78. 30, opposed by a face of ice without the least opening, and with all the appearance of a solid wall. It is well known, that the coasts of *Siberia* are, after a northern tempest, rendered inaccessible for a vast extent, by the polar ice being set in motion. It is as well known, that a strong southern wind will again drive them to their former seats, and make the shores of the Frozen ocean as clear as the equatorial seas. A farther discovery on this side was denied to the noble navigator. His misfortune will for ever redound to his honor, as it proved his spirit, his perseverance, and a soul fertile in expedients among the greatest difficulties!

That navigators have gone into higher latitudes I cannot deny: the authenticated instances only shew their accidental good fortune, in having the ice driven towards the pole, and in making a retreat before they were enveloped in the returning ice. The *Russians*, under vice-admiral *Tshitshaghef*, within these very few years, made an attempt to sail to the pole by the eastern side of *Spitzbergen*; but after suffering great hardships, returned without effecting any discovery. Curiosity has been amply satisfied: and I believe we may rest fully content with the common passage to *India*, on the conviction of this tract being totally impracticable.

ICE.

The forms assumed by the ice in this chilling climate, are extremely pleasing to even the most incurious eye. The surface of that which is congealed from the sea-water (for I must allow it two origins) is flat and even, hard, opaque, resembling white sugar, and incapable of being slid on, like the *British* ice‡. The greater pieces, or fields, are many leagues in length: the lesser, are the meadows

* *Phips Voy.* tab. v.

† Same, tab. vi.

‡ *Crantz.* i. 31.

of the Seals, on which those animals at times frolic by hundreds. The motion of the lesser pieces is as rapid as the currents: the greater, which are sometimes two hundred leagues long, and sixty or eighty broad *, move slow and majestically; often fix for a time, immovable by the power of the ocean, and then produce near the horizon that bright white appearance, called by mariners the *blink of the ice* †. The approximation of two great fields produces a most singular phenomenon; it forces the lesser (if the term can be applied to pieces of several acres square) out of the water, and adds them to their surface: a second, and often a third succeeds; so that the whole forms an aggregate of a tremendous height. These float in the sea like so many rugged mountains, and are sometimes five or six hundred yards thick ‡; but the far greater part is concealed beneath the water. These are continually encreased in height by the freezing of the spray of the sea, or of the melting of the snow, which falls on them. Those which remain in this frozen climate, receive continual growth; others are gradually waisted by the northern winds into southern latitudes, and melt by degrees, by the heat of the sun, till they waste away, or disappear in the boundless element.

The collision of the great fields of ice, in high latitudes, is often attended with a noise that for a time takes away the sense of hearing any thing else; and the lesser with a grinding of unspeakable horror.

The water which dashes against the mountainous ice freezes into an infinite variety of forms; and gives the voyager ideal towns, streets, churches, steeples, and every shape which imagination can frame §.

The *Icebergs*, or *Glaciers* of the north-east of *Spitzbergen*, are among the capital wonders of the country; they are seven in number, but at considerable distances from each other: each fills the vallies for tracts unknown, in a region totally inaccessible in the internal parts. The *glaciers* of *Switzerland* seem contemptible to these; but present often a similar front into some lower valley. The last exhibits over the sea a front three hundred feet high, emulating the emerald in color: cataracts of melted snow precipitate down various parts, and black spiring mountains, streaked with white, bound the sides, and rise crag above crag, as far as eye can reach in the back ground §.

At times immense fragments break off, and tumble into the water, with a most alarming dashing. A piece of this vivid green substance has fallen, and grounded in twenty-four fathoms water, and spired above the surface fifty feet **. Simi-

[ICEBERGS.]

* *Grantz*, i. 31.
i. 31.

† *Phips*, 72.

‡ *Ellis's Voy.* 127.

§ *Marten*, 37.

Grantz,

§ See the beautiful plate in *Phips's Voy.* tab. vii.

** *Phips*, p. 70.

lar icebergs are frequent in all the *Arctic* regions; and to their lapses is owing the solid mountainous ice which infests those seas.

Frost sports also with these icebergs, and gives them majestic as well as other most singular forms. Masses have been seen, assuming the shape of a Gothic church, with arched windows and doors, and all the rich tracery of that style, composed of what an *Arabian* tale would scarcely dare to relate, of crystal of the richest sapphire blue: tables with one or more feet; and often immense flat-roofed temples, like those of *Luxxor* on the *Nile*, supported by round transparent columns of caerulean hue, float by the astonished spectator *.

These icebergs are the creation of ages, and receive annually additional height by the falling of snows and of rain, which often instantly freezes, and more than repairs the loss by the influence of the melting sun †.

SNOW.

The snow of these high latitudes is as singular as the ice. It is first small and hard as the finest sand ‡; changes its form to that of an hexagonal shield, into the shape of needles, crosses, cinquefoils, and stars, plain and with serrated rays. Their forms depend on the disposition of the atmosphere; and in calm weather it coalesces, and falls in clusters §.

SEASONS.

Thunder and lightning are unknown here. The air in summer is generally clear; but the sky loaden with hard white clouds. The one night of this dreadful country begins about *October 20th*, O. S.; the sun then sets, and never appears till about the 3d of *February* ||: a glimmering indeed continues some weeks after its setting: then succeed clouds and thick darkness, broken by the light of the moon, which is luminous as that in *England*, and shines without intermission during the long night ¶. Such also is the case in *Nova Zemlja* **. The cold, according to the *English* proverb, strengthens with the new year; and the sun is ushered in with unusual severity of frost. The splendor of that luminary on the snowy summits of the mountains was the most glorious of sights to the single party who survived to relate the account. The Bears stalk forth at the same time from their dens, attended by their young cubs. By the beginning of *March*, the cheerful light grows strong: the *Arctic* Foxes leave their holes, and the sea-fowls resort in great multitudes to their breeding-places ††.

BEARS.

FOXES.

FOWLS.

* *Marten*, 43. † The same. ‡ The same. § The same, 51. || Relation of Eight *Englishmen*, &c. *Churchill's Coll.* iv. 818.—Relation of Seven *Dutchmen*, &c. *Churchill*, ii. 430.
¶ Narrative of Four *Russian* sailors, 94. ** *De Ver, trois Voy. au Nord*. 22, b. †† Relation of Eight *Englishmen*, &c. 817, 818, 819.

The sun, in the height of summer, has at times heat enough to melt the tar on the decks of ships. It sets no more after the third of *May*, O. S. Distinction of day and night is lost; unless it be said what *Fr. Marten* alleges, that during the summer night of these countries, the sun appears with all the faintness of the moon*. This is denied by Lord *Mulgrave*†. From *August* the power of the sun declines, it sets fast; in *September* day is hardly distinguishable; and by the middle of *October* takes a long leave of this country; the bays become frozen; and winter reigns triumphant.

DAY AND NIGHT.

Nature, in the formation of these islands, preserves the same rule which she does in other places: the highest mountains are on the western side; and they gradually lower to the east. The altitude of the most lofty which has been taken by Lord *Mulgrave*, seems to have been one a little to the north of *Black Point*, which was found by the megameter to be fifteen hundred and three yards‡: that of a hill on the little isle, the *Norways*, a small distance to the north-east of *Spitzbergen*, was two thousand four hundred feet: one on *Vogel Sang*, sixteen hundred and fifty; another, on the isle near *Cloven Cliff*, in about lat. 80, eight hundred and sixty-five; a third on that near *Cook's Hole*, seven hundred and eleven; and one on *Hackluyt's Island*, only three hundred and twenty-one§. These are the most northern lands which ever were measured; and the experiments favor the system of the decrease of the heights of the mountains toward the poles.

MOUNTAINS.

Earth and soil are denied to those dreadful regions: their composition is stone, formed by the sublime hand of Almighty Power; not frittered into segments by fissures, transverse or perpendicular, but at once cast into one immense and solid mass; a mountain is but a single stone throughout, destitute of fissures, except in places cracked by the resistless power of frost, which often causes lapses, attended with a noise like thunder, scattering over their bases rude and extensive ruins. The stone is granite, mostly grey and black; some red, white, and yellow. I strongly suspect, that veins of iron are intermixed; for the meltings of the snow tinge the rocks frequently with a ferruginous ochre. A potter's clay and a gypsum are to be met with on the eastern part of the islands||.

VALLIES.

The vallies, or rather glens, of this country, are filled with eternal ice or snow; are totally inaccessible, and known only by the divided course of the mountains, or where they terminate in the sea in form of a *glaciere*. No streams water these dreary bottoms; even springs are denied; and it is to the periodical

* *Marten*, 48.† *Voy.* 71.‡ *Phips Voy.* 33.

§ The same, on tab. viii.

|| Narrative of Four Russian sailors, 78, 89.

cataracts

cataraets of melted snow of the short summer, or to the pools in the middle of the fields of ice, to which the mariners are indebted for fresh water.

HARBOURS.

The harbours on the west side are frequent; penetrate deep into the island of *Spitzbergen*; and are the only channels by which the slight knowledge of the interior parts is attained. *North Harbour* is a scene of picturesque horror, bounded by black craggy *Alps*, streaked with snow; the narrow entrance divided by an island; and at seasons affording a land-locked shelter to multitudes of ships.

TIDE AND SEA.

The tide at the *Vogel Sang* flows only four feet, and the flood appears to come from the south. The depth of the sea is very irregular: near the shore it is generally shallow: off *Low Island* only from ten to twenty fathoms; yet suddenly deepens to a hundred and seventeen: off *Gloven Cliff* from fourteen to twenty-eight, and deepens to two hundred. The shallows are usually on rock; the great depths on soft mud: the former I look on as submarine islands; but, from the small number of fish, the bottoms must be universally barren.

SOIL!

The grit worn from the mountains by the power of the winds, or attrition of cataraets of melted snow, is the only thing which resembles soil, and is the bed for the few vegetables found here. This indeed is assisted by the putrefied *lichens* of the rocks, and the dung of birds, brought down by the same means.

PLANTS.

Even here *Flora* deigns to make a short visit, and scatter over the bases of the hills a scanty stock. Her efforts never rise beyond a few humble herbs, which shoot, flower, and seed, in the short warmth of *June* and *July*; then wither into rest till the succeeding year.—Let me here weave a slender garland from the lap of the goddess, of such, and perhaps all, which she hath bestowed on a country so repugnant to her bounty. Let the salubrious Scurvy Grass, the resource of distempered seamen, be remarked as providentially most abundant in the composition.

Let me first mention its only tree, the *Salix Herbacea*, or Dwarf Willow, described by *Marten*, p. 65, *Phips*, 202, which seldom exceeds two inches in height, yet has a just title to the name. The plants are, a new species of Grass, now named *Agrostis Algida*: *Tillæa Aquatica*, Sp. Pl. 186. Fl. Suec. 156: *Juncus Campestris*, Fl. Sc. i. 186: *Sibbaldia Procumbens*? Fl. Lap. 111.; *Marten's Spitz.* tab. H. fig. b: *Polygonum Viviparum*, Fl. Lap. 152; *Marten's Spitz.* tab. I. fig. a: *Saxifraga Oppositifolia*, Fl. Lap. 179, 222: *Sax. Cernua*, Sp. Pl. i. 577; Fl. Lap. 172: *Sax. Rivularis*, Sp. Pl. 577; Fl. Lap. 174: *Sax. Caspitosa*, Sp. Pl. 578; Fl. Suec. 376: *Sedum Annuum*? Sp. Pl. 620; *Marten's Spitz.* tab. F. fig. c: *Cerastium Alpinum*, Sp. Pl. 628; Fl. Lap. 192: *Ranunculus Sulphureus*, *Phips* Voy. 202; *Mart. Spitz.* 58: *R. Lapponicus*, Fl. Lap. 461, 503: *R. Nivalis*? 232; *Mart. Spitz.* tab. F. fig. a: *Cochlearia Danica*, Sp. Pl. 903; Fl. Suec. 578, 579: *Cochl.*

Cochl. Grælandica, Sp. Pl. 904 : *Polytrichum commune*, Fl. Lap. 395 : *Bryum Hypnoides*, Fl. Lap. 396 : *Bryum Trichoides*? Dill. 391 ; Musc. tab. 50, fig. 61 : *Bryum Hypnoides*? Dill. Musc. 394, tab. 50, fig. 64, C : *Hypnum Aduncum*, Sp. Pl. 1592 ; Fl. Suec. 879, 1025 : *Jungermannia Julacea*, Sp. Pl. 1601 : *Jung.* like the *Lichenastrum Ramosus*, fol. trif. Dill. Musc. 489, tab. 70, fig. 15 : *Lichen Ericetorum*, Fl. Lap. 936, 1068 : *L. Islandicus*, 959, 1085 : *L. Nivalis*, 446 : *L. Caninus*, 441 : *L. Polyrhizos*, Sp. Pl. 1618 ; Fl. Suec. 1108 : *L. Pyxidatus*, Fl. Lap. 428 : *L. Cornutus*, 434 : *L. Rangiferinus*, 437 : *L. Globiferus*, Lin. Mantiff. 133 : *L. Paschalis*, Fl. Lap. 439 : *L. Chalybeiformis*, Sp. Pl. 1623 ; Fl. Suec. 988, 1127 : and the *Fucus Saccharinus*? Fl. Lap. 460 ; Mart. Spitz. tab. F. fig. 6.

It is matter of curiosity to trace the decrease of vegetables from our own island to this spot, where so few are to be found. They decrease with the numbers of herbivorous animals, and the wants of mankind. The following catalogue may not be quite just, but is probably pretty near the truth :

		Perfect.		Imperfect.		Total.
England has	—	1,124	—	590	—	1,714
Scotland	—	804	—	428	—	1,232
The Orknies	—	354	—	144	—	498
Sweden	—	933	—	366	—	1,299
Lapland	—	379	—	155	—	534
Iceland	—	309	—	233	—	542

Those of *Spitzbergen* are given above.

The three terrestrial quadrupeds of these islands are confined here without possibility of migration. The Polar Bears pass the greatest part of the winter in a torpid state : appear in numbers at the first return of the sun, when, probably, they take to the ice, in quest of their prey, Seals, or dead Whales.

QUADRUPEDS.

It is difficult to account for the means which the Foxes find for support, as the island is destitute of birds during the whole winter ; and, the bays being totally frozen up, they can find no subsistence from the sea. Perhaps they lay up provision for winter, on which they subsist till the arrival of the birds in *March* ; at which season they have been observed first to quit their holes, and appear in multitudes *. The Rein Deer have at all times their favorite *lichen*, which they can readily get at, by help of their palmated horns.

WALRUSES and Seals are found in great abundance ; the latter are often the object of chase, for the sake both of oil and skins : the *Russians* make voyages on

* Churchill, iv. 819.

m

purpose.

purpose. In 1743, four unhappy mariners of that nation were accidentally left on shore on *North Eastland*, called by the *Russians* *Maloy Broun*. Here three (the fourth died in the last year) lived till *August* 15th 1749; when they were providentially relieved by the arrival of a ship, after passing six years, realizing in ingenious contrivances the celebrated *English* fable of *Robinson Crusoe* *.

In the year 1633 seven *Dutch* sailors were left voluntarily on the western part of *Spitzbergen*, to pass the winter, and form their remarks. They were furnished with medicines, and every requisite to preserve life; but every one perished by the effects of the scurvy. In the next year, seven other unhappy men devoted themselves, and died in the same manner. Of the first set, it appeared by his journal, that the last was alive the 30th of *April* 1634; of the second, the life of the last survivor did not continue far beyond the 28th of *February* 1635†. Yet eight *Englishmen*, left in 1630 in the same country, by accident, and unprovided with every thing, framed themselves a hut from some old materials, and were found by the returning ships, on *May* 28th 1631, in good health‡. Thus *Russian* hardiness and *British* spirit braved a climate, which the phlegmatic constitution of a *Dutchman* could not resist.

BIRDS.

To meet with the Snow Bunting, N° 222, a bird whose bill, in common with the rest of that genus, is calculated for granivorous life, is a kind of miracle. The country has a very scanty provision of seeds; the earth yields no worms, the air no insects; yet these birds are seen in flocks innumerable, and that chiefly on the ice around *Spitzbergen*: as it breeds early, possibly the old and young may have quitted the land, and collected on the ice at the time of the arrival of the ships.

Of cloven-footed water-fowl, the Purre, N° 390, alone is seen here.

Of web-footed, the Puffin Auk, N° 427; the Razor Bill, N° 425; the Little Auk, N° 429; the Foolish Guillemot, N° 436; the Black Guillemot, N° 437; the Northern Diver, N° 439; the Ivory Gull, N° 457; the Herring Gull, N° 452; the Arctic Gull, N° 459; the Kittiwake, N° 456; and the Greater Tern, N° 448: these, with the Eider Duck, N° 480, complete the short list of the feathered tribe of *Spitzbergen*. All these breed in the frost-rent cracks of the mountains, and appear even in these regions before the 16th of *March* §.

FISH.

The Whale is lord paramount of these seas; and, like a monstrous tyrant, seems to have terrified almost every other species of fish away. A few Coal Fish, *Br. Zool.* iii. N° 78, and two of the unctuous Suckers, N° 58, were the whole which were taken by Lord *Mulgrave*, after several trials by hook and by net.

* See the curious Narrative,

† *Churchill's Coll.* ii. 415, 427.

‡ The same, iv. 803.

§ The same, p. 818.

I can never imagine that the shallow, barren, and turbulent shores of the polar regions receive, as is popularly thought, the immense shoals of Herrings and Cod which annually repair to other more southern seas. Their retreat must be in the great depths before described *, where they are secure from the greatest storms, and probably enjoy a bottom luxuriant in plants and *vermes*.

The Whale which inhabits these seas, and occasions the great resort of shipping, is the common species, *Br. Zool.* iii. N° 16. I have in that Work given its history; therefore shall add no more, than that during spring these animals keep near *Greenland* and the island of *John Mayen*; and towards summer they appear in the seas of *Spitzbergen*. The Fin Fish, *Br. Zool.* iii. N° 18, is another species: on their appearance, the Common Whale makes its retreat. The *Beluga* or White Whale, p. 183 of this Work, is seen here in summer, and prognosticates a good fishery.

The insects, *vermes*, and shells, of *Spitzbergen*, are very few. The Prawn, *Br. Zool.* iv. N° 28, and Sea Flea, N° 33, are found there. The *Cancer Boreas*, *Ampulla*, and *Nugax*, are three new species †, added to the genus by the noble navigator.

Of the known species of *vermes*, the *Ascidia Gelatinosa*, *Lin. Syst.* 1087: the *Ascidia Rustica*, 1087, 5: the *Lernæa Branchialis*, 1092: and the *Clio Helicina*, the small Slime Fish of *Marten*, p. 141, tab. Q. fig. e: and the *Clio Limacina*, the Sea May Fly of the same, p. 169, tab. P. fig. 5: the *Sipunculus Lendix*, a new species, *Phips*, 194, tab. xiii. are found here: the two last, the supposed food of the Common Whale, are met with in vast abundance ‡: the *Medusa Capillata*, the *Asterias Papposa*, *Lin. Syst.* 1098: *Ast. Rubens*, 1099; *Ast. Pectinata*, 1101; *Br. Zool.* iv. N° 70: *Ast. Ophiura*, 1100; *Br. Zool.* iv. N° 62: and *Ast. Caput Medusæ*, *Lin. Syst.* 1101; *Br. Zool.* iv. N° 73. And of Shells, the *Chiton Ruber*, 1107; *Lapes Tintinnabulum*, 1168: the *Mya Truncata*, 1112; *Br. Zool.* N° 14: and *Mytilus Rugosus*, 1156; *Br. Zool.* iv. N° 72: the *Buccinum Carinotum*, a new species, *Phips*, 197, tab. xiii: *Turbo Helicinus* of the same, 198: the *Serpula Spirorbis*, *Lin. Syst.* 1265; *Br. Zool.* iv. N° 155: *Serpula Triquetra*, 1265; *Br. Zool.* iv. N° 156: and the *Sabella Frustulosa*, *Phips*, 198, complete the list of this class. Among the *Zoophytes* is the *Millepora Polymorpha*, *Lin. Syst.* 1285; and *Millep.* 1286; and a most curious new genus, discovered in the voyage, named the *Synoicum Turgens*, 199, tab. xiii: the *Flustra Pilosa*, *Lin. Syst.* and *Fl. Membranacea*, 1301, 3, 5: and, to conclude, that very curious *Zoophyte*, the foundation of the fossil *Encrini*,

* See p.

† *Phips Voy.* 190, &c. tab. xii.

‡ The same, p. 194, 195.

DISCOVERY OF
SPITZBERGEN.

the *Vorticella Encrinus*, Lin. Syst. N° 1317, engraven in our Transactions, vol. xlviii. p. 305, and taken in lat. 79, off this coast: two of them being drawn up with the sounding-line, in 236 fathom water.

The priority of discovery of these islands has been a great matter of controversy between the *English* and the *Dutch*. We clame it from the sight which Sir *Hugh Willoughby* is pretended to have had of it in his unfortunate voyage; but if what he saw, in lat. 72, was not a fog-bank, we must suppose it to have been either *John Mayen's* isle, or part of *East Greenland*. The absurd zeal of the *English* compilers makes *Stephen Boroughs* the second discoverer of this country, in 1556; but it is very certain, that he never got higher than lat. 70. 42, nor ever meant any discovery but a passage to the river *Ob* *. It doubtlessly was first discovered by the *Dutch Barentz*; who, in his third voyage, in 1596, for the finding out the north-east passage, met with a land in lat. 79 $\frac{1}{2}$, and anchored in a good road, in eighteen fathom water. He afterwards sailed as high as 80, and found two of the islands of which *Spitzbergen* is composed †. Embarrassed with ice, he took a southern course, and was soon after wrecked on the coast of *Nova Zemlja*: but the *English* and *Dutch* pursued the hint; and the *Whale-fishery*, which before was chiefly carried on by the *Biscayeners* in the bay of *St. Laurence*, was commenced here with great success. So active were we, that our ships frequented the place within two years after its discovery.

WHITE SEA.

ARCHANGEL.

I now return to the *North Cape* on the coast of *Finmark*; and after passing by the several places mentioned in pages lxxix. and lxxx. enter a freight, bounded by *Muscovitish Finmark*, consisting of low hills, and the flat province of *Mesen*, on the east. This leads into the *Bioele Mari*, or *White Sea*, or, more properly, gulph; for its waters are shallow, its bottom full of mud, brought by the great rivers which discharge themselves into it, which almost deprive it of saltness. This was the *Cwen* sea of *Oether*; but had been forgotten since his time. The *Dwina*, or *Double River*, is the greatest, which takes its name from being formed by the *Suchona* and the *Yug*, very remote from its mouth. It is navigable to a great distance, and brings the commodities of the interior parts of the empire to *Archangel*, a city seated on its banks, about six miles from the sea. It rose from a castle built there by *Basilowitz II.* to protect the in-

*. *Hackluyt*, i. 274, 280.

† *Trois Voyages au Nord*, &c. par *Girard de Ver*, p. 14, 15.

creasing trade brought here on the discovery of the *White Sea* by the *English*; for ships of all nations resorted to this port, even as far as from *Venice*. Its exports, in 1655, amounted to three hundred and thirty thousand pounds*. *Peter* the Great, intent on aggrandizing his creation, *Petersburg*, prohibited all trade to *Archangel*, except from the neighboring provinces. Still its exports of tar were considerable: in 1730, to the amount of forty thousand lasts, of eleven barrels each†. It sends, during winter, great quantities of the *Nawaga*, a small species of three-finned Cod‡, to *Petersburg*, frozen, as *Kola* does Herrings in the same state.

The *White Sea* is every winter filled with ice from the Frozen ocean, which brings with it the Harp Seal, N° 77; and the Leporine, N° 75, frequent it during summer. Whoever surveys the maps of the provinces between this sea and the gulphs of *Bothnia* and *Finland*, will observe them to be more occupied by lakes than land, and be at once satisfied of the probability of the once-insulated state of *Scandinavia*. As soon as these streights were closed, the *White Sea* lost its depth, and is at present kept open only by the force of its great rivers.

On the eastern side of the entrance into the streight is the isle of *Kandinos*, often spoken of by our early navigators in their way to the *Waygatz*, in their search for a north-east passage. Between it and the main land is a very narrow channel. After doubling the cape of *Kandinos*, the sea forms two great bays. A considerable part of the shore to the east consists of low sandy hills§. Into the most remote bay flows, in lat. 68. 30, by many mouths, the vast river *Peczora*, a place of great trade before the time of *Peter* I. Thousands of *Samoieds* and other savages resorted to the town, with feathers of White Grouse, and other birds; Sables, and the most valuable furs; skins of Elks and other deer; the oil from the Walrus, N° 71, from the *Beluga*, p. 182; and different sort of fish§. Here was, in 1611, a great fishery of *Beluga*: above fifty boats, with three men each, were employed to harpoon them¶. The entrance into the river is dangerous, by reason of a sandy shoal. The tide rises there only four feet.

The coasts east of *Archangel*, even as far as the river *Ob*, are inhabited by the *Samoieds*; a race as short as the *Laplainers*, more ugly, and infinitely more brutalized; their food being the carcasses of horses, or any other animals. They use the Rein Deer to draw their sledges, but are not civilized enough to

SAMOIEDS.

* *Anderson's Diet.* i. 97. † The same, 328. ‡ *Nov. Com. Petrop.* xiv. 484. tab. xii. Its length does not exceed eleven inches. § *Hackluyt*, i. 277. § *Purchas*, i. 546.

¶ The same, 549.

make it the substitute for the Cow. These are in fact the *Hottentots* of the north.

To the east of the *Peczora* commences the continent of

A S I A,

URALLIAN
CHAIN.

Which has most natural and strongly-marked limits. Here appear the *Werchoturian* mountains, or famous *Urallian* chain, which begins distinctly (for it may be traced interruptedly farther south) near the town of *Kungur*, in the government of *Kasan*, in lat. 57. 20, runs north, and ends opposite to the *Waygatz* strait, and rises again in the isle of *Nova Zemlja*. The *Russians* also call this range *Semennoi Poias*, or the *Girdle of the World*, from a supposition that it encircled the universe. These were the *Riphæi montes*: *Pars mundi damnata a natura rerum, et densa merse Caligine* *, of which only the southern part was known to the ancients, and that so little as to give rise to numberless fables. Beyond these were placed the happy *Hyperborei*, a fiction most beautifully related by *Pomponius Mela* †. Moderns have not been behind-hand in exaggerating several circumstances relative to these noted hills. *Ysbrand Ides*, who crossed them in his embassy to *China*, asserts that they are five thousand toises or fathoms high: others, that they are covered with eternal snow. The last may be true in their more northern parts; but in the usual passages over them, they are free from it three or four months.

ITS HEIGHT.

The heights of part of this chain have been taken by *M. l'Abbè d'Auteroche*; who, with many assurances of his accuracy, says, that the height of the mountain *Kyria*, near *Solikamskaia*, in lat. 60, does not exceed four hundred and seventy-one toises from the level of the sea, or two hundred and eighty-six from the ground on which it stands ‡. But, according to *M. Gmelin*, the mountain *Pauda* is much higher, being seven hundred and fifty-two toises above the sea ||. From *Petersburg* to this chain

* *Plinii Hist. Nat. lib. iv. c. 12.*

† In *Asiaticis* littore primi *Hyperborei*, super aquilonem *Riphaeosque* montes, sub ipso siderum cardine jacent; ubi sol non quotidie, ut nobis, sed primum verno *Æquinoctio* exortus, autumnali demum occidit; et ideo sex mensibus dies, & totidem aliis nox usque continua est. Terra augusta, aprica, per se fertilis. Cultores justissimi, et diutius quam ulli mortalium & beatiùs vivunt. Quippe festo semper otio læti, non bella novère, non jurgia; sacris operati, maximè *Apollinis*; quorum primitias *Delon* misisse, initio per virgines suas, deinde per populos subinde tradentes ulterioribus; moremque eum diu, & donec vitio gentium temeratus est, servasse referuntur. Habitant lucos sylvasque; et ubi eos vivendi satietas magis quam tædium cepit, hilares, redimiti fertis, semet ipsi in pelagus ex certa rupe præcipiti dant. Id eis funus eximium est. *Lib. iii. c. 5.*

‡ *Voyage de la Sibirie, ii. 605.*

|| Preface to *Flor. Sibir. i. 54.*

is a vast plain, mixed with certain elevations or platforms, like islands in the midst of an ocean. The eastern side descends gradually to a great distance into the wooded and morassy *Siberia*, which forms an immense inclined plane to the *Icy Sea*. This is evident from all the great rivers taking their rise on that side, some at the amazing distance of lat. 46; and, after a course of above twenty-seven degrees, falling into the Frozen ocean in lat. 73. 30. The *Yaik* alone, which rises near the southern part of the eastern side, takes a southern direction, and drops into the *Caspian sea*. The *Dwina*, the *Peczora*, and a few other rivers in *European Russia*, shew the inclined plane of that part: all of them run to the northern sea; but their course is comparatively short. Another inclination directs the *Dnieper* and the *Don* into the *Euxine*, and the vast *Volga* into the *Caspian Sea*.

The *Altaic Chain*, its southern boundary, which begins at the vast mountain *Bogdo*, passes above the head of the *Irtisch*, and then takes a course rugged, precipitous, cloathed with snow, and rich in minerals, between the *Irtisch* and *Ob*; then proceeds by the lake *Telezkoi*, the rise of the *Ob*; after which it retires, in order to comprehend the great rivers which form the *Jenesei*, and are locked up in these high mountains; finally, under the name of the *Sainnes*, is uninterruptedly continued to the lake of *Baikal* *. A branch insinuates itself between the sources of the rivers *Onon* and *Ingoda*, and those of *Ichikoi*, accompanied with very high mountains, running without interruption to the north-east, and dividing the river of *Amur*, which discharges itself into the east, in the *Chinese* dominions, from the river *Lena* and lake *Baikal*. Another branch stretches along the *Olecma*, crosses the *Lena* below *Jakoutsk*, and is continued between the two rivers *Tongouska* to the *Jenesei*, where it is lost in wooded and morassy plains. The principal chain, rugged with sharp-pointed rocks, approaches and keeps near the shores of the sea of *Ockhozt*, and passing by the sources of the rivers *Outh*, *Aldan*, and *Maja*, is distributed in small branches, which range between the eastern rivers which fall into the *Icy Sea*; besides two principal branches, one of which, turning south, runs through all *Kamtchatka*, and is broken, from the cape *Lopatka*, into the numerous *Kurile* isles, and to the east forms another marine chain, in the islands which range from *Kamtchatka* to *America*; most of them, as well as *Kamtchatka* itself, distinguished by fierce volcanoes, or the traces of vuleanic fires. The last chain forms chiefly the great cape *Tschutski*, with its promontories and rocky broken shores.——I have so far pillaged the labors of my friend †, to trace the boundaries of the vast region which has so amply furnished my *Zoologic* part.—To that, and the Table of Quadrupeds, I refer the several peculiarities of their situations.

ALTAIC CHAIN.

HOW DISTRI-
BUTED.

* *Observations sur la Formation des Montagnes*, par P. S. PALLAS, p. 12.

† Doctor PALLAS.

At

At the northern end of the great *Urallian* chain, is the *Waygatz* freight, which cuts them from *Nowyia Zemlja*, *Nova Zembla*, or the *New Land*. The passage is narrow, obstructed by islands, and very frequently by ice. The flux and reflux is here uncertain, by reason of the winds; but the tide has been observed to rise only four feet *: the depth from ten to fourteen fathoms. It was discovered by *Stephen Boroughs*, in 1556; and the navigation was often attempted by the *Dutch*, in hopes of a passage that way to *China*. Continual obstructions from the floating ice baffled their designs, and obliged them to return.

Nova Zemlja consists of five islands; but the channels between them are always filled with ice †. It is quite uninhabited, but is occasionally frequented by the people of *Mesen*, who go there to kill Seals, Walruses, *Arctic* Foxes, and White Bears, the sole animals of the place, excepting a few Rein Deer. Attempts have been made to find a way to the *East Indies* to the north of it; but with equal bad success as through the *Waygatz*. *Barentz* just doubled the eastern end in 1596; suffered shipwreck there with his crew; and passed there a most miserable winter, continually besieged by the Polar Bears: several of the crew died of the scurvy or excess of cold; the survivors made a vessel of the remains of their ship, and arrived safe in *Europe* the following year; but their great pilot sunk under the fatigue ‡.

The southern coasts of these islands are in a manner unknown. Between them and the continent is the *Kara* sea, which forms a deep bay to the south, in which the tide has been observed to flow two feet nine inches. Fishing people annually come here from the *Peczora* through the *Waygatz*, for the sake of a smuggling trade in furs with the *Samoieds* of the government of *Tobolski* §. In the reign of the Empress *Anne* attempts were made to double the great cape *Jalmal*, between the gulph of *Kara* and that of the *Ob*; one of which (in 1738) only succeeded, and that after encountering the greatest difficulties §. Had the discovery of *Siberia* depended on its approach by sea, it might have still remained unknown.

THE RIVER OB.

The mouth of the *Ob* lies in a deep bay, which opens into the *Icy Sea*, in lat. 73. 30. This is the first and greatest of the *Siberian* rivers: it rises from a large lake in lat. 52, has a gentle course through eight hundred leagues of country, navigable almost to its source ¶: is augmented by the vast river *Irtisch*, in lat. 61, which again receives on each bank a multitude of vast rivers in its extensive progress. *Tobolski*, capital of *Siberia*, lies on the forks, where it takes in the *Tobol*. The

* *Hackluyt*. i. 282.

† Doctor *PALLAS*.

‡ See this curious voyage, as related

by *De Veer*. ¶ *PALLAS*.

§ *Coxe's Russian Discoveries*, 306.

¶ *Gmelin Introd. Fl. Sib.*

vii. xxx. By *Leuca* he seems to mean a *Verst*, of which 104 $\frac{1}{2}$ make a degree. See cxxiii. and *Mr. Coxe's Russian Discoveries*, *Introd.* xiii.

banks of the *Irtiseh* and *Ob*, and other *Siberian* rivers, are, in many places, covered with immense forests, growing on a soft soil; which being torn up by the resistless force of the vast fragments of ice brought down by the torrents occasioned by the melting of the snows, are conveyed into the *Icy* and other seas, and form the drift-wood I have before spoken of. The channel of the *Ob*, from its source to the *Ket*, is stony: from that river to the mouth it runs through a fat land. After it has been frozen some time, the water grows foul and fetid. This is owing to the vast morasses it in some places goes through, to the slowness of the current, and to the earth-salt (*erdsaltz*) with which some of the rivers which run into it are impregnated. The fish therefore shun the waters of the *Ob*, and resort in vast shoals to the mouths of those rivers which rush into it from stony countries, and in such places are taken in great abundance. This stench continues till the river is purified in the spring by the melting of the snow. The *Taz*, another river which empties itself into the east of the gulph of *Ob*, is liable to the same impurity.

ITS ANNUAL
STENCH.

The *Jenesei* next succeeds. Mr. *Gmelin*, as a naturalist, would consider this as the boundary between *Europe* and *Asia*. From its eastern banks every thing puts on a new appearance: a certain new and unusual vigour reigns in every thing. The mountains, which to the westward, as far as the *Urallian* chain, appeared only scattered, now take full possession, and are interspersed with most beautiful vallies. New animals, such as the *Argali*, p. 12, and *Musk*, p. 34, and several others, begin to shew themselves. Many *European* plants disappear, and others peculiar to *Asia*, gradually mark the alteration*. This river is scarcely inferior to the *Ob*. It rises from the two rivers *Ulu-kem* and *Bei-kem*, in north lat. 51. 30, long. 111, and runs due north into the *Icy Sea*, forming a mouth filled with multitudes of islands: its channel for the most part stony or gravelly: its course swift: its fishes most delicate: its banks, especially the eastern, mountainous and rocky; but from the fort of *Saiaenes* to the river *Dubtches*, rich, black, and cultivated. It is fed by numbers of rivers. The *Tungusca*, and the lower *Tungusca*, are the most noted. The first rushes, near *Irkutz*, out of the great lake *Baikal*, under the name of the *Angara*, between two vast rocks, natural, but with all the appearance of being cut through by art, and tumbling over huge stones in a bed a mile wide, and for a space nearly the same †. The collision of the waters against the stones is attended with a most dreadful noise, which, with the magnificence of the scenery, forms the most awful approach imaginable to this sacred water. A deity presided over the lake; and no one dared call it by that degrading name, for fear of incurring the penalty of the disrespect. Instead of *lake*, the borderers style it the *Holy Sea*; and its vast mountains, the *Holy Mountains*. St. *Nicholas* presides over them, and has

JENESEI RIVER.

LAKE BAIKAL.

* *Pref. Fl. Sibir.* xliv.

† *Bell's Travels*, 8vo. ed. i. 279.

SEALS.

TOWN OF MANGAZEA.

here his chapel. The mountains are clothed with forests: of large trees on the lower parts; with fewer and lesser as they gain the heights. These are the retreat of the Wild Boar, and variety of game. Its depth of water is very great: its clearness perfect: free from islands, except the *Olehon* and *Saetchia*: navigable in all parts: and in storms, the waves like those of the sea. Its length is a hundred and twenty-five common leagues: its breadth from four to seven*. The Common Seal abounds in this lake. It is a small variety, but so fat as to appear almost shapeless. These animals must have been here aboriginally; for, besides the vast distance from the sea, their passage must have been entirely obstructed by the cataraacts which intervene. I am got eight degrees beyond my plan; but I could not resist the description of this prince of lakes.

The *Angara* runs nearly due north for a great way; then assumes the name of *Tungusca*, turns westward, and joins the *Jenesei* in lat. 58. The lower *Tungusca* rises far to the south-west, approaches very near to the *Lena*, and falls into the *Jenesei* in lat. 65. 40. Above its junction stands the town of *Mangazea*, celebrated for its great fair of furs of every kind, brought there by the surrounding pagans, who pass the long winter in the chase. Many *Russians* have also migrated, and settled here for the same purpose, and draw great profit from the spoils of the animals. This neighborhood is, during summer, the great resort of multitudes of species of water-fowl. About the feast of St. Peter, here *Flora* begins to disclose her beauties: the country is covered with the most beautiful *Siberian* flowers; many of which enliven the gardens of our more southern climate. The fowls now exult, and unite in emitting their various notes; none particularly melodious in themselves, but together form a concert far from disagreeable†; perhaps from the hearer being conscious that they are the notes of happiness, at the enjoyment of the reviving rays of the sun.

In antient times, *Mangazea*, or, as it was then called, *Mongazey*, and *Mongolmy*, was seated near the mouth of the *Taz*‡; but was removed by the inhabitants into a milder climate, i. e. just to the south side of the *Arctic* circle. Before that period it was a place of great trade, and was eagerly visited from *Archangel*, through a complication of difficulties, by sea, by rivers, by land, by rein-drawn sledges, and by drawing the vessels from river to river over frequent carrying-places§. These tracts were certainly *Le pais presque inaccessible à cause de boües, & de glaces*, and, *Le pais de tenebres*, spoken of by *Marco Polo*§, as the regions from whence the *Chams* of *Tartary* procured the richest furs.

CAPE TAIMURA.

From the mouth of the *Jenesei*, the immense promontory *Taimura* stretches

* *Voyage en Sibirie*, i. 213.
Purchas, iii. 539.

† Same, ii. 56.

‡ Same, 57.

§ Same, and

§ In *Bergeron's Collection*, 160, 161.

RIVER LENA. COAST OF THE ICY SEA.

XCIX

farthest north of all this region into the *Icy Sea*, nearly into lat. 78. To the east of it the *Chatanga*, *Anabara*, and *Olenek*, rivers little known, fall into the sea, and have before the mouth of each a considerable bay. Remarks have been made on the tide which flows into the *Katanga*, that at the full and new moon it rises two feet; at other times is much less*. We may conclude, that if it flows no higher in this contracted place, and that of the gulph of *Kara*, its increase must be very small on the open shores of the *Icy Sea*. The coasts are in general shallow, which has proved a safety to the few small vessels which have navigated this sea; for the shoalness of the water preserves them from the mountainous ice, which grounds before it can reach them.

BEYOND the *Olenek*, the vast *Lena*, which rises near lake *Baikal*, after a gentle and free course over a sandy or gravelly bottom, discharges itself by five great mouths, the eastern and western most remote from each other. The middle, or most northerly, is in lat. 73. 20. To form an idea of the size of this river, I must remark, that at *Jakutsk*, in lat. 61, twelve degrees from its discharge, the breadth is near three leagues†. Beyond this river the land contracts itself, and is bounded to the south by the gulph of *Ochotsk*. The rivers *Jana*, *Indigirka*, and *Kolyma* or *Kotwyna*, have a comparatively short course. The last is the most easterly of the great rivers which fall into the *Icy Sea*. Beyond it is a woodless tract, which cuts off the *Beaver*, the *Squirrels*, and many other animals to whom trees are essential in their economy. No forests can exist farther north than lat. 68; and at 70, brush-wood will scarcely grow. All within lat. 68, form the *Arctic Flats*, the summer haunts of water-fowl; a bare heath or moor, mixed with rocky mountains: and beyond the river *Anadyr*, which in lat. 65. falls into the *Kamtschatkan Sea*, the remainder of the tract between it and the *Icy Sea* has not a single tree‡.

RIVER LENA.

ARCTIC FLATS
WOODLESS.

I shall now take a review of the vast extent of shore which borders on the *Icy Sea*. The *Jouratzkaine* coast, which lies between the *Ob* and the *Jenisei*, is high but not mountainous, and almost entirely composed of gravel or sand; but in many places there are low tracts. Not only on these, but on more elevated situations, are found great fragments of wood, and often entire trees, all of the same species; Fir, Larch, and Pine, green and fresh; in other places, elevated beyond the reach of the sea, are also great quantities of floated wood, antient, dried, and rotting§. This is not the only proof of the loss of water in the *Icy* as well as other seas; for in these places is seen a species of clay, called by the *Russians*, *Il*, which is exactly like the kinds usually deposited by the water: and of this there is, in these parts, a bed about eight inches thick, which universally forms the upper stratum||. Still farther to

* *Voy. en Siberie*, ii. 30. † Possibly *Versts*. See *Voy. en Siberie*, i. 407. ‡ Doctor PALLAS.
§ *Voy. en Siberie*, ii. 27, 28. || Same, ii. 362.

the east, it grows mountainous, covered with stones, and full of coal. On the summit of the chain, to the east of *Simovie Ratchinoie*, is an amazing bed of small Mussels, of a species not observed in the subjacent sea. I think them brought there by sea-fowl, to eat at leisure; for it is not wonderful that numbers of objects of natural history should escape the eye in such a sea as this. Many parts again are low; but in most places the sea near the shore is rugged with pointed rocks. The coast about the bay of cape *Tschutski*, the most eastern extremity of *Asia*, is in some places rocky, in others sloping and verdant; but within land rising into a double ridge of high mountains.

FREEZING OF THE
ICY SEA.

About the end of *August*, there is not a day in which this sea might not be frozen; but in general it never escapes later than the first of *October*. The thaw commences about the twelfth of *June*, at the same time with that of the mouth of the *Jenesi**. From the great headlands, there is at all times a fixed, rugged, and mountainous ice, which projects far into the sea. No sea is of so uncertain and dangerous navigation: it is, in one part or other, always abundant in floating ice. During summer, the wind never blows hard twenty-four hours from the north, but every part of the shore is filled for a vast distance with ice; even the freights of *Bering* are obstructed with it†. On the reverse, a strong south wind drives it towards the pole, and leaves the coast free from all except the fixed ice. During winter, the sea is covered, to the distance of at least six degrees from land. *Markoff*, a hardy *Cossack*, on *March* 15th, O. S. in the year 1715, attempted, with nine other persons, a journey from the mouth of the *Jana*, in 71 north lat. to the north, over the ice, on sledges drawn by dogs. He went on successfully some days, till he had reached lat. 77. or 78: he was then impeded by most mountainous ice. He climbed to the summit of one of the *Icebergs*; and seeing nothing but ice as far as his eye could reach, returned on *April* 3d, with the utmost difficulty: several of his dogs died, and served as food for the rest‡.

I shall just mention some of the attempts made to pass through the *Icy Sea* to that of *Kamtchatka*. The first was in 1636, from the settlement of *Yakutzk*. The rivers from the *Jana* to the *Kolyma* were in consequence discovered. In 1646 a company of *Russian* adventurers, called *Promyschleni*, or Sable-hunters, made a voyage from the *Kolyma* to the country of the *Tschutski*, and traded with those people for the teeth of the *Walrus*. A second, but unsuccessful voyage was made in the next year; but in 1648 one *Deschnew*, on the 20th of *June*, began his memorable voyage, was fortunate in a season free from ice, doubled the *Tschutski-nosi*, arrived near the river *Olutora*, south of the river *Anadyr*, where he suffered ship-

* *Voy. en Siberie*, ii. 29.
† *East Spitzbergen*, 55.

† *PALLAS*: Also Narrative of four *Russian* sailors cast away on
‡ *Forster's Obf.* 81.

wreck, but escaped to enjoy the honor of his discovery. Many other attempts were made, but the most which the adventurers have done was to get from the mouth of one great river to another in the course of a summer. I find very few names, except of rivers, in a tract so vast as it is, on account of its being so little frequented. To the east of the promontory *Taimura*, that of *St. Transfigurationis* bounds the east side of the bay of *Chatanga*, in lat. 74. 40, long. from *Ferro* 125. *Swaitoi-nofs*, or the *Holy Cape*, in lat. 73. 15, is a far-projecting headland, and, with the isles of the *Lena*, and another intervening headland, forms two vast bays. Out of the most eastern, into which the river *Yana* discharges itself, one *Schalourof*, a broken Russian merchant, took his departure for an eastern discovery. He began his voyage in July 1760 from the *Lena*, but was so obstructed with ice that he was forced into the *Yana*, where he was detained the whole winter, by the same cause, till July 29th, 1761. He doubled the *Swaitoi-nofs* September the 6th; according to some, saw to the north a montanous land, possibly an island. He was eight days in getting through the passage between the continent and the isle of *St. Diomede*, which lies a little to the south-east of the *Nofs*. He passed with a favorable wind the mouths of the *Indigirka* and *Alazeia*, and getting entangled among the ice between the *Medviedkie Ostrova*, or *Bear Islands*, was obliged to lay up his vessel in one of the mouths of the *Kolyma* during winter, where he subsisted on rein-deer, which frequented those parts in great herds during the severe season; and on various species of salmon and trout, which were pushing their way up the river before it was frozen. After this he made two other attempts. In the year 1763 he passed the *Peszcanoi-nofs*, and got into a deep bay, called *Tschaoûn Skaja Goubâ*, with the isle of *Sabedei* at its mouth; the great *Schalatfskoi-nofs* to the east; and at its bottom the little river *Tschaoûn*, which discharges itself here out of the land of the *Tschutski*, some of whom he saw on the shore, but they fled on his appearance. He found no means of subsisting in this bay, therefore was obliged to return to the *Lena*, and was greatly assisted in his passage by the strength of the current, which uniformly set from the east. In 1764 he made his last attempt, and was, as is conjectured, slain by the *Tschutski*; but whether he doubled the famous cape of that name, is left uncertain. A MS. map, which Doctor PALLAS favored me with, places the montanous isle before mentioned in lat. 75, opposite to the cape *Schalatfskoi* *. Thus closes all the accounts I can collect of the voyages along

* This was supposed to have been part of the continent of *America*; but in 1768, M. *Tchitscherin*, governor of *Siberia*, put the matter out of doubt; for he sent there three young officers in the winter, on the ice. They found some small desert isles, without the least appearance of land on the north; but on one they met with a sort of defence, formed of floating wood, on the side of a precipice, but by whom formed, or against what enemy, is hard to guess. PALLAS. MS.

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this distant coast. Part is taken from Mr. Coxe's *Russian Discoveries**, and part from a manuscript for which I am indebted to the learned Professor before mentioned.

The wind which passes over the ice of this polar sea, has rendered *Siberia* the coldest of inhabited countries: its effects may perhaps extend much farther. At *Chamnanning*, in *Thibet*, in lat. 30. 44. (according to Major *Rennel*'s classical map) Mr. *Bogle* found, during winter, the thermometer in his room at 29° below the freezing point. In the middle of *April* the standing waters were all frozen, and heavy snows perpetually fell †. I have heard of ice even at *Patna*, in lat. 25. 35; and of the *Seapoys* who had slept on the ground being found in the morning torpid. Near the fort of *Argun*, not higher than lat. 52, the ground seldom thaws deeper than a yard and a half ‡. At *Iakutsk*, in lat. 62, the soil is eternally frozen even in summer, from the depth of three feet below the surface. An inhabitant, who by the labor of two summers sunk a well to the depth of ninety-one feet, lost his labor, and found his farthest searches frozen §. Birds fall down, overcome with the cold; and even the wild beasts sometimes perish. The very air is frozen, and exhibits a most melancholy gloom ||.

AURORA BOREALIS.

The *Aurora Borealis* is as common here as in *Europe*, and usually exhibits similar variations: one species regularly appears between the north-east and east, like a luminous rainbow, with numbers of columns of light radiating from it: beneath the arch is a darkness, through which the stars appear with some brilliancy. This species is thought by the natives to be a forerunner of storms. There is another kind, which begins with certain insulated rays from the north, and others from the north-east. They augment little by little, till they fill the whole sky, and form a splendor of colors rich as gold, rubies, and emeralds: but the attendant phenomena strike the beholders with horror, for they crackle, sparkle, hiss, make a whistling sound, and a noise even equal to artificial fire-works. The idea of an electrical cause is so strongly impressed by this description, that there can remain no doubt of the origin of these appearances. The inhabitants say, on this occasion, it is a troop of men furiously mad which are passing by. Every animal is struck with terror; even the dogs of the hunters are seized with such dread, that they will fall on the ground and become immoveable till the cause is over ¶.

FISH.

I am slightly acquainted with the fish of the *Icy* sea, except the anadromous kinds, or those which ascend from it into the *Siberian* rivers. The *Ob*, and other

* P. 323. to 329. † *Ph. Transf.* lxvii. 471. ‡ *Pref. Flora Sib.* 78. § *Forster's Obf.* 85. quoted from *Gmelin.* ¶ *Pref. Flora Sib.* 73. ¶ *Voy. en Siberie*, ii. 31, 52. *Siberian*

Siberian rivers, are visited by the Beluga Whale, the common Sturgeon, and the Sterlet or *Acipenser Ruthenus*, Lin. Syft. 403; but I am informed by Doctor Pallas, that they have neither Carps, Bream, Barbels, nor others of that genus, nor yet Eels, *Silurus Glanis*, Lin. Syft. 501; *Perca Lucioperca*, 481; or common Trout: all which are found in the Amur, and other rivers which run into the eastern ocean: in the latter, our common Cray-fish is found. In return, the Siberian rivers abound in vast variety of the Salmon kind, and many unknown to us in Europe, which delight in the chilly waters of these regions. The common Salmon, Br. Zool. iii. N° 143, is one of the scarcer kinds: the *Salmo Nelma*, Pallas Itin. ii. 716, or *Salmon Leucichthys* of *Guldenstaedt*, Nov. Com. Petrop. xiv. 531, is a large species, growing to the length of three feet: the head greatly protracted: the lower jaw much the longest: the body of a silvery white: scales oblong: tail bifid. P. D. Rad. 14. The *Salmo Taimen*, or *Hucho*, Pallas, ii. 716, grows to the weight of ten or fifteen pounds, and the length of a yard and a half: the color of the back is dusky; towards the sides silvery: the belly white: spotted with dusky on the back: anal fin of a deep red: tail bifurcated: flesh white: *Salmo Lavaretus*, iii. 705, or *Gwiniad*, Br. Zool. iii. N° 152: *Salmo Albula*, Lin. Syft. 512: *Salmo Schokur*, Pallas Itin. iii. 705; a species about two feet long, not unlike the *Gwiniad*: the *Salmo Pidschian*, Pallas Itin. iii. 705; about two spans long, broader than the *Gwiniad*, and with a gibbous back: *Salmo Wimba*, Lin Syft. 512: and *Salmo Nafus*, Pallas Itin. iii. 705*, are extremely common in the Ob. Others shun that still river, and seek the *Jenesei*, and other rapid streams with stony bottoms. Such are the *Salmo Lenok*, Pallas Itin. ii. 716†: *Salmo Oxyrhynchus*, Lin. Syft. 512: and *Salmo Autumnalis*, or *Omul*, Pallas Itin. iii. 705; which annually force their way from the sea, from lat. 73. to lat. 51. 40, into lake *Baikal*, a distance of more than twenty-one degrees, or near thirteen hundred miles. The *Omul* even crosses the lake, and ascends in August the river *Selinga*, where it is taken by the inhabitants in great quantities, and is preserved for the provision of the whole year. After dropping its spawn in the stony beds of the river, it again returns to the sea. The *Salmo Arcticus*, Pallas Itin. iii. 206; and *S. Thymallus*, or *Grayling*, Br. Zool. iii. N° 150; may be added to the fish of the Siberian rivers. The *Salmo Cyldraceus*, or *Walok* of the Russians, is a fish very slender, and almost cylindrical, with a very small mouth, large silvery scales, and the under fins reddish. This is found only in the *Lena*, the *Kouyma*,

SURPRIZING MIGRATIONS OF FISH.

* The *Schokur* and *Nafus* are two species of *Coregoni*, or Salmons, with very small teeth.

† *Voy. en Siberie*, i. 237. It also ascends through the *Jenesei* and the *Tuba* to the *Madbar*, a lake an amazing distance in the mountains.

and *Indigirka*. M. Gmelin and the Abbé D'Auteroche assure us, that Pikes, Perch, Ruffs, Carp, Bream, Tench, Crucians, Roach, Bleaks, and Gudgeons, are also met with in the *Ob*, and different rivers of this country *. I cannot reconcile this to the former account given me by so able a naturalist, to whom I owe this history of the *Arctic* fish. The *Salmo Kundsha*, Pallas Itin. iii. 706, abounds in the gulphs of the *Icy* sea, but does not ascend the rivers; and the *Pleuronectes Glacialis*, Pallas Itin. iii. 706, is frequent on the sandy shores.

To review the inhabitants of the *Arctic* coasts, I shall return as far as *Finmark*. I refer the reader to p. LXXIX. for what I have said of the *Laplanders*. The *Samoieds* line the coasts from the east side of the *White* sea, as far (according to the *Russian* maps) as the river *Ob*, and even the *Anabara*, which falls into the *Icy* sea in lat. 73. 30; and possess the wildest of countries inland, as low as lat. 65. After them succeeds, to the east, a race of middle size; and, extraordinary to say, instead of degeneracy, a fine race of men is found in the *Tschutski*, in a climate equally severe, and in a country equally unproductive of the supports of life, as any part of these inhospitable regions. The manners of all are brutal, savage, and nearly animal; their loves the same; their living squalid and filthy beyond conception: yet on the site of some of these nations *Mela* hath placed the elegant *Hyperborei*: and our poet, *Prior*, giving free loose to his imagination, paints the manners of these *Arctic* people in the following beautiful fiction, after describing the condition of the natives of the torrid zone.

And may not those, whose distant lot is cast
North beyond *Tartary's* extended Waste;
Where, thro' the plains of one continual day,
Six shining months pursue their even way,
And fix succeeding urge their dusky flight,
Obscur'd with vapors, and o'erwhelm'd in night;
May not, I ask, the natives of these climes
(As annuals may inform succeeding times)
To our quotidian change of heaven prefer
Their own vicissitude, and equal share
Of day and night, disparted thro' the year?
May they not scorn our sun's repeated race,
To narrow bounds prescrib'd, and little space,

Half'ning from morn, and headlong driven from
noon,
Half of our daily toil yet scarcely done?
May they not justly to our climes upbraid
Shortness of night, and penury of shade?
That, ere our weary'd limbs are justly blest
With wholesome sleep, and necessary rest,
Another sun demands return of care,
The remnant toil of yesterday to bear?
Whilst, when the solar beams salute their sight,
Bold and secure in half a year of light,
Uninterrupted voyages they take
To the remotest wood, and farthest lake;

* *Voy en Sibirie*, par Gmelin, i. 84, 89, 241. ii. 167, 170, 219.—*Voy. en Sibirie*, par l'Abbé D'Auteroche, i. 200. Engl. Ed. 231.

Manage the fishing, and pursue the course,
 With more extended nerves, and more continued
 force?
 And when declining day forsakes their sky;
 When gathering clouds speak gloomy Winternigh,
 With plenty for the coming season blest,
 Six solid months (an age) they live releas'd
 From all the labor, process, clamor, woe,
 Which our sad scenes of daily action know:

They light the shining lamp, prepare the feast,
 And with full mirth receive the welcome guest:
 Or tell their tender loves (the only care
 Which now they suffer) to the list'ning Fair;
 And rais'd in pleasure, or repos'd in ease,
 (Grateful alternates of substantial peace)
 They bless the long nocturnal influence shed
 On the crown'd goblet, and the genial bed.

With greater reality speaks that just observer of nature, the naturalist's poet,
 of the inhabitants of this very country, as a true contrast to the foregoing
 lines:

Hard by these shores, where scarce his freezing
 stream
 Rolls the wild Oby, live the last of men;
 And half-enliven'd by the distant sun,
 That rears and ripens man as well as plants,
 Here human nature wears its rudest form.
 Deep from the piercing season, sunk in caves,
 Here, by dull fires, and with unjoyous cheer,

They waste the tedious gloom. Immers'd in
 furs,
 Doze the gross race. Nor sprightly jest, nor song,
 Nor tenderness they know; nor aught of life,
 Beyond the kindred bears that stalk without,
 Till morn appears, her roses dropping all,
 Sheds a long twilight bright'ning o'er the fields,
 And calls the quiver'd savage to the chase.

THOMSON.

This amazing extent of the *Asiatic Russian* dominions remained undiscovered
 to a very late period. The *Czars*, immersed in sensuality, or engaged in wars,
 had neither taste or leisure to explore new countries. A plundering excursion
 was made into it in the reign of *Basilovitz I*; a second was made under his suc-
 cessor: but a stranger, the celebrated *Cossac, Yermac*, driven from his country
 on the shores of the *Caspian* sea, pushed his way with a resolute band as far as
Orel, near the head of the *Kama*, on the western side of the *Uallian* chain.
 There he met with one *Strogonoff*, a *Russian* merchant, recently settled in those
 parts for the sake of the traffic of furs. He continued in that neighborhood the
 whole winter, and was supplied by the *Russians* with all necessaries. In the spring he
 turned his arms against *Kutchum Chan*, one of the most powerful of the petty princes
 of the country which now forms part of the government of *Tobolski*. In 1581,
 he fought a decisive battle with the Chan, overthrew him, and seated himself
 on the throne. Finding his situation precarious, he ceded his conquests to *Ba-
 filovitz*, who seized on the opportunity of adding this country to his dominions.
 He sent *Yermac* a supply of men. But at length his good fortune forsook him.
 He was surprized by the Chan; and, after performing all that a hero could do,
 perished in attempting to escape.

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The *Russians*, on the death of their ally, retired out of *Siberia*; but they soon returned, recovered the conquests made by *Yermac*, and, before the middle of the following century, added to their antient possessions a territory fourteen hundred and seventy leagues in length, and near seven hundred in breadth (without including the *Russian* colonies on the island of *Oonalsbka*, on the coast of *America**) yet is so thinly peopled, and with such barbarians, as to add no strength to the empire by any supplies to the army or navy. They are almost torpid with inaction; lazy to the highest degree, from their necessary confinement to their stoves during the long winter of the country. In that season, the ground is clad with deep snow, and the frost most tremendously severe. The spring, if so it may be called, is distinguished by the muddied torrents of melting snows, which rush from the mountains, and give a sea-like appearance to the plains. Mists, and rain, and snow, are the variations of that season, and they continue even to the fourth of June. The short summer is hot, and favorable to vegetation. Corn may be seen a foot high by the 22d of June; and the grass is most luxuriant. Culinary plants will scarcely grow about *Tobolski*. Fruits of every kind, except a currant, are unknown. A single crab-like apple, raised in a hot-house, was once produced there, sliced in a large dish, at a great entertainment, and served up with as much ostentation as we would in *England* a pine-apple.

The animals of *Siberia*, the furs of which were the original object of its conquest, are now so reduced, that the *Russians* are obliged to have recourse to *England* for a supply from *North America*, which they add to their own stock of furs exported into *China*. Metals seem the staple trade of the country. Those of iron and copper are abundant and excellent. Gold and silver are found in several places, and in such abundance, as to form a most important article in the revenues of *Russia*. The copper mines of *Kolyvan*, from which those precious metals are extracted, employ above forty thousand people, mostly colonists. The silver mines of *Nertschinsk*, beyond lake *Baikal*, above fourteen thousand. The whole revenue arising from the mines of different metals, is not less than £. 679,182. 13 s. †

PLANTS.

Next to the discovery of the new world, no place has added more to the entertainment of naturalists than *Siberia*. As has been before observed, nature there assumes a new appearance in the animal world: it does the same in the vegetable; at least, very few trees are found common to *Europe* and *Asia*. Let me just mention the nobler kinds: the Oak, frequent as it is in *Russia* and in *Casan*, is not to be seen in this vast region nearer than the banks of the *Argun*

* *D'Auteroche, Voy. en Siberie*, i. 83.† *Coxe's Travels*.

and *Amar*, in the Chinese dominions. The White Poplar, *Populus alba*, and the Aspen, *Populus tremula*, are extremely common. The Black Poplar, *Populus nigra*; the Common Sallow, *Salix caprea*; Sweet Willow, *Salix pentandra*; White Willow, *Salix alba*, are very frequent. The Hazel, *Corylus Avellana*, is circumstanced like the Oak. The Common Birch, *Betula alba*, is most abundant; and, as in all northern nations, of universal use. The Dwarf Birch, *Betula nana*, is confined to the neighborhood of lake Baikal. The Alder, *Betula Alnus*, is very frequent. The Pinaster, *Pinus Pinea*; the Pine with edible seeds, or *Pinus Cembra*; and Larch, *Pinus Larix*; all trees of the first use, medicinal or economical, cover many parts of the country. The Norway Fir, *Pinus Abies*, and the Silver Fir, *Pinus Picea*, form, in most parts of the country, great forests: the first grows in this country not farther north than lat. 60; the last not higher than lat. 58; yet the former flourishes in Europe, and composes in Lapmark, far beyond the Arctic circle, woods of great extent: a proof of the superior rigour of cold in the Asiatic north. These form the sum of European trees growing in Sibiria. Of other plants, common to both continents, M. Gmelin gives the reader, in p. xciv. of his Preface, a slender list of such which fell under his observation.

The trees or shrubs peculiar to Sibiria and Tartary, are the *Acer Tartaricum*, Sp. Pl. ii. 1495: the *Ulmus pumila*, 327: *Prunus Sibirica*, Amman. Ruth. 272, tab. 29: *Pyrus baccata*, 274: *Robinia Caragana*, frutescens, and *pygmaea*, Sp. Pl. ii. 1044. I may also observe, that the *Taccamabacca*, or *Populus balsamifera*, 1463, common also to North America, abounds about the upper part of the Lena, the Angara, and Jensei, and between the Onon and Aga. An infusion of its buds is used by the natives as an excellent remedy for an infamous disorder, frequent in this great country.

EUROPE is obliged to Sibiria for that excellent species of Oat, the *Avena Sibirica*, Fl. Sib. i. 113. tab. 22. Lin. Sp. Pl. i. 117; and our gardens are in a most peculiar manner enlivened with the gay and brilliant flowers introduced from that distant and severe climate. I shall only select a few out of the multitude*. *Veronica Sibirica*, *Iris Sibirica*, Fl. Sib. i. 28. *Eryngium planum*, i. 185. *Lilium bulbiferum*, i. 41. *L. pomponium*, i. 42. *L. Martagon*, i. 44. *Delphinium grandiflorum*, Sp. Pl. i. 749. *Erythronium Dens canis*, i. 39. tab. 7. *Hemerocallis flava*, i. 37. *Saxifraga crassifolia*, Sp. Pl. i. 573. *Lychnis chalcidonica*, Sp. Pl. i. 625. *Pyrus baccata*, *Lythrum virgatum*, Sp. Pl. 642. *Amyg-*

* This list was communicated to me by an able botanist; but I think some of the plants are also found in Europe.

Salix nana, Sp. Pl. 677. *Paeonia tenuifolia*, Sp. Pl. i. 748. *Glaucium integrifolia*, Sp. Pl. i. 767. *Adonis vernalis*, Sp. Pl. i. 771. *Astragalus ciliatus*, Sp. Pl. ii. 1064. *Hypericum Ascyron*, Sp. Pl. ii. 1102. *Echinops ritro*, Fl. Sib. ii. 100. *Veratrum nigrum*, Fl. Sib. i. 76.

Tschutski.

After the conquest of *Siberia*, the *Tschutski* were the first people discovered by the *Russians*, who were indebted to the adventure of *Deschnew* for the knowledge of them. They are a free and brave race, and in size and figure superior to every neighboring nation; tall, stout, and finely made, and with long and agreeable countenances; a race insulated strangely by a lesser variety of men. They wore no beards. Their hair was black, and cut short, and covered either with a close cap, or hood large enough to cover the shoulders. Some hung beads in their ears, but none had the barbarism to bore either noses or lips. They wore a short and close frock, breeches, and short boots: some had trousers. The materials of their cloathing was leather admirably dressed, either with or without the hair*. It is said that at times they wear jackets made of the intestines of whales †, like the *Eskimaux*; probably when they go to sea, for they excel their neighbors in fishing, and use open boats covered with skins ‡, and like the women's boats of the *Greenlanders*. They have also the lesser or *kajak*. They make use of sledges, and have large fox-like dogs of different colors, with long soft woolly hair, which are probably designed for the draught. Some say that they use rein-deer, of which they have vast abundance, but neither milk them nor kill them for food, preferring the flesh of sea animals, except one dies by chance, or is killed by the wolves. They are a brave and warlike people; are armed with bows and arrows; the last pointed with stone or bone. They had spontoons headed with steel, procured by traffic from the *Russians*; these they usually slung over their right shoulder; and a leathern quiver of most elegant workmanship hung over the left §. The *Russians* have often gained dear-bought victories over this brave people, but never were able to effect their conquest. They retained an high sense of liberty, and constantly refused to pay tribute; and the ambitious *European* miscalled them rebels. They will not on any consideration part with their weapons: possibly a *Tschutski* may think a disarmed man dishonored. Captain Cook, in his three hours visit to them, found their attachment to their arms, notwithstanding they willingly parted with any thing else, and even without the prospect of exchange. They treated him with great civility, but prudent caution: saluted him by bow-

* *Voyage*, ii. 450, tab. 51.§ See tab. 51 of the *Voyage*.† *Hist. Kamtschatka*, Fr.‡ *Voyage*, ii. 452.

T S C H U T S K I.

HIC

ing and pulling off their caps, possibly a piece of politeness they learned from the *Russians*. They treated him with a song and dance, and parted friends; but not without a most remarkable and consequential event:—A year after the interview between Captain Cook and the *Tschutski*, a party of these people came to the frontier post of the *Russians*, and voluntarily offered friendship and tribute. These generous people, whom fear could not influence, were overcome by the civility and good conduct of our illustrious commander: they mistook him and his people for *Russians*, and, imagining that a change of behaviour had taken place, tendered to their invaders a lasting league*. Possibly the munificent empress may blush at the obligation conferred by means of *British* subjects, in procuring to her empire a generous ally, at the instant her armed neutrality contributed to deprive us of millions of lawful subjects.

From the shortness of the interview little knowledge could be gained of their customs. I shall only observe, that they bury their dead under heaps of stones, or carnedds: several were seen here with the rib of a whale on the top instead of a pillar†; a proof of the universality of these memorials of the dead.

TUMULI.

The country of the *Tschutski* forms the most north-easterly part of *Asia*. It is a peninsula, bounded by the bay of *Tchaun*, by the *Icy Sea*, the straits of *BERING*, and the gulph and river of *Anadir*, which open into the sea of *Kamtschatka*. It is a mountainous tract, totally destitute of wood, and consequently of animals which require the shelter of forests. The promontory *Schalotskoi*, before mentioned, is the most westerly part. Whether it extends so far north as lat. 74, as the *Russians* place it, is very doubtful: there is the opinion of our great navigator against it. From his own reasonings he supposed that the tract from the *Indigirka*, eastward, is laid down in the maps two degrees to the northward of its true position‡. From a map he had in his possession, and from information he received from the *Russians*, he places the mouth of the *Kowyma*, in lat. 68, instead of lat. 71. 20, as the *Petersburg* map makes it. It is therefore probable, that no part of *Asia* in this neighbourhood extends further than lat. 70, in which we must place the *Schalotskoi Nofs*; and after the example of Mr. *Campbell*, who formed his map of this country chiefly from the papers of Captain *BERING*§, give the land which lies to the east of that promontory a very southern trend. As Captain *COOK* had cause to imagine that the former charts erred in longitude as well as latitude, it is probable that he reached within sixty miles of the *Schalotskoi Nofs*||. There we find him on *August* 29th, 1778, and from this period are enabled, from his remarks, to proceed securely accurate.

CORRECTIONS IN
GEOGRAPHY BY
CAPT. COOK.

* *Voy.* iii. 217.
Harris's Voy. ii. 1016.

† *Ellis's Narrative*, i. 332.
|| *Voyage* iii. 270.

‡ *Voyage* iii. 268.

§ In

P

After

* BERING'S
STRAIGHT

CAPE NORTH.

BURNEY'S ISLE.

DEPTH

SERDZE KAMEN.

CAPT. BERING.

LIST OF OFFICERS
AND
SERVANTS

EAST CAPE.

After crossing the *Key Sea* from the most extreme part of the coast of *America* which he could attain, he fell in with land. It appeared low near the sea, and high inland, and between both lay a great lake. To a steep and rocky point, nearly in lat. 68. 56, and long. 180. 51, his *ne plus ultra* on the *Asiatic* side, he gave the name of *Cape North*; beyond which he could not see any land, notwithstanding the weather was pretty clear. The sea, at three miles distance from the shore, was only eight fathoms deep: this, with a rising wind, approaching fog, and apprehension of the coming down of the ice, obliging him to desist from farther attempts in these parts, he proceeded as near to the coast as he could with prudence, towards the south-east, and found it retain the same appearance. In lat. 67. 45, he discovered a small isle, about three leagues from the main, with steep and rocky shores, on which he bestowed the name of *Burney*, in honor of one of his officers; gratefully immortalizing the companions of his voyage, in this and other instances. After passing the island, the continent inland rose into mountains of considerable height, the termination of the great chain I before described.

In lat. 67. 3, long. 188. 11, he fell in with *Serdze Kamen**, a lofty promontory, faced towards the sea with a steep rocky cliff. To the eastward the coast continues high and bold, towards the *North Cape* low, being a continuation of the *Arctic* flats. This was the northern limit of the voyage of another illustrious navigator, Captain VITUS BERING, a *Dane* by birth, and employed on the same plan of discovery in these parts as our great countryman was in the late voyage. He was in the service of PETER the GREAT; who, by the strength of an extensive genius, conceiving an opinion of the vicinity of *America* to his *Asiatic* dominions, laid down a plan of discovery worthy of so extraordinary a monarch, but died before the attempt was begun; but his spirit survived in his successor. BERING, after a tedious and fatiguing journey through the wilds of *Siberia*, arrived in *Kamtchatka*, attended with the scanty materials for his voyage, the greatest part of which he was obliged to bring with him through a thousand difficulties. Several of the circumstances of his adventures will be occasionally mentioned†. I shall only say here, that he sailed from the river of *Kamtchatka* on July 15th, 1728; on the 15th of August saw *Serdze Kamen*, or the heart-shaped rock, a name bestowed on it by the first discoverer.

From *Serdze Kamen* to a promontory named by Captain Cook *East Cape*‡, the land trends south-east. The last is a circular peninsula of high cliffs, projecting

* See tab. 84 of the *Voyage*.

† The account of the voyage is extremely worthy of perusal, and is preserved by the able Doctor Campbell, in *Harris's Collection*, ii. 1018. ‡ See tab. 84 of the *Voyage*.

BERING'S STRAIGHTS.

C21

far into the sea due east, and joined to the land by a long and very narrow isthmus, in lat. 66. 26. This is the *Tschuktsi* Nose of our navigators, and forms the beginning of the narrow freights or division of the old and new world. The distance between *Asia* and *America* in this place is only thirteen leagues. The country about the cape, and to the north-west of it, was inhabited. About mid-channel are two small islands, named by the *Russians* the *Isles of St. Diomedes*; neither of them above three or four leagues in circuit †. It is extremely extraordinary that *BERING* should have sailed through this confined passage, and yet that the object of his mission should have escaped him. His misfortune could only be attributed to the foggy weather, which he must have met with in a region notorious for mists ‡; for he says that he saw land neither to the north nor to the east §. Our generous commander, determined to give him every honor his merit could claim, has dignified these with the name of *BERING'S STRAIGHTS*.

* *BERING'S STRAIGHTS.*

CAPE NORTH

BURBANK'S ISLE

DEPTH.

CURRENT.

CACT. BERING

ISLES OF CLERKE
AND
ST. LAURENCE.

CACT. BERING

The depth of these freights is from twelve to twenty-nine or thirty fathoms. The greatest depth is in the middle, which has a slimy bottom; the shallowest parts are near each shore, which consists of sand mixed with bones and shells. The current or tide very inconsiderable, and what there was came from the west.

From *East Cape* the land trends south by west. In lat 65. 36, is the bay in which Captain *COOK* had the interview with the *Tschuktsi*. Immediately beyond is the bay of *St. Laurence*, about five leagues broad in the entrance, and four deep, bounded at the bottom by high land. A little beyond is a large bay, either bounded by low land at the bottom, or so extensive as to have the end invisible. To the south of this are two other bays; and in lat. 64. 13, long. 186. 36, is the extreme southern point of the land of the *Tschuktsi*. This formerly was called the *Anadirskoi* Nose. Near it *BERING* had conversation with eight men, who came off to him in a *baidar*, or boat covered with the skins of seals; from which *BERING* and others have named it the *Tschuktsi* Nose. A few leagues to the south-east of this point lies *Clerke's* island, in lat 63. 15, discovered by Capt. *COOK*; and immediately beyond a larger, on which *BERING* bestowed the name of *St. Laurence*: the last, the resort of the *Tschuktsi* in their fishing parties ||. Both of these consist of high cliffs, joined by low land. A small island was seen about nineteen leagues from *St. Laurence's*, in a north-east by east half east direction; I suspect it to be that which Capt. *COOK* named *Anderson's*, in memory of his surgeon, who died off it, and from his amiable character seems to have well

* See the chart of them, *Voyage*, vol. ii. tab. 53. † *Voy.* ii. 445. iii. 243. ‡ *Voyage* ii. 470. and *Meteorolog. Tables*, iii. App. 512, 513, 520, 521. § *Harris's Coll.* ii. 1020. || *Muller's Voy. des Russes*, i. 148.

merited this epithet. It lies in lat. 63. 4, long. 192. 8. An anonymous islet, imperfectly seen, and lying in lat. 64. 24, long. 190. 31, in mid-channel, completes the sum of three seen remote from land between the Straits and the isle of *St. Laurence*. As to those named in the chart given by Lieut. *Sydney*, who in 1764 made a voyage from *Kamtschatka* towards *Bering's Straights*, they seem to exist only in imagination; notwithstanding the *Russian* calendar has been exhausted to find names for them, *St. Agathon*, *St. Titus*, *St. Myron*, and many others, fill the space passed over by Capt. *Cook*, and which could not have escaped the notice of his successor. The land from *Bering's Tschutski Nofs* trends vastly to the west, and bounds on that side the vast gulph of *Anadir*, into the bottom of which the river of the same name empties itself; and limits the territory of the *Tschutski*. From thence is a large extent of coast trending south-west from Cape *St. Thaddeus*, in lat. 62. 50, long. 180, the southern boundary of the gulph of *Anadir*, to *Ojutoriskoi Nofs*, beyond which the land retires full west, and forms in its bosom a gulph of the same name. Off *Thaddeus Nofs* appeared, on June 29th, abundance of walruses and great seals; and even the wandering albatross was seen in this high latitude. Between this and the *Penginsk* gulph, at the end of the sea of *Ochotsk*, is the isthmus which unites the famous peninsula of *Kamtschatka* to the main land, and is here about a hundred and twenty miles broad, and extends in length from 52 to 61, north lat. The coasts are often low: often faced with cliffs, in many parts of an extraordinary height; and out at sea are rude and spiring rocks, the haunts of leonine seals, whose dreadful roarings are frequently the preservation of mariners, warning them of the danger, in the thick fogs of this climate. The coast has but few harbours, notwithstanding it juts frequently into great headlands. The most remarkable are, the *North Head*, with its needle rocks, at the entrance of the bay of *Awatcha* (*Voyage*, vol. iii. tab. 58); *Cheepooniskoi Nofs*, still further north, engraven in vol. ii. tab. 84; and *Kronotskoi Nofs*, with its lofty cliffs. The peninsula widens greatly in the middle, and lessens almost to a point at Cape *Lopatka*, which slopes into a low flat, and forms the southern extremity of the country. The whole is divided lengthways by a chain of lofty rocky mountains, frequently covered with snow, and shooting into conic summits, often smoking with vulcanic eruptions. They have broken out in numbers of places: the extinct are marked by the craters, or their broken tops. The vulcano near *Awatcha* §, that of *Tolbatchick*, and that of the mountain of *Kamtschatka* ||, are the modern. They burst out sometimes in whirlwinds of flames,

VULCANOS.

* *Coxe's Russian Discovery Map*, p. 300.—*Voy.* iii. 503. † *Voyage* iii. 241. ‡ *Descr.* *Kamtsch.* 429. § See tab. 85, *Voyage*, vol. iii.; and description of its eruption, p. 235. || See *Descr. Kamtschatka*, tab. xv. p. 342.

and

and burn up the neighboring forests: clouds of smoke succeed, and darken the whole atmosphere, till dispersed by showers of cinders and ashes, which cover the country for thirty miles round. Earthquakes, thunder, and lightning, join to fill the horror of the scenery at land; while at sea the waves rise to an uncommon height, and often divide so as to show the very bottom of the great deep. By an event of this kind was once exposed to sight the chain of submarine mountains which connected the *Kuril* isles to the end of this great peninsula. I do not mean that they overflow with lava or with water, like the volcanos of *Europe*. There are in various parts of the country hot springs, not inferior in warmth to those of *Iceland*: like them they in some places form small *Jets d'eau*, with a great noise, but seldom exceed the height of a foot and a half.

HOT SPRINGS.

The climate during winter is uncommonly severe; for so low as *Bokheretzk*, lat. 52° 30', all intercourse between neighbors is stopped. They dare not stir but for fear of being frost-bitten. Snow lies on the ground from six to eight feet thick as late as *May*; and the storms rage with uncommon impetuosity, owing to the subterraneous fires, the sulphureous exhalations, and general volcanic disposition of the country. The prevailing winds are from the west, which passing over the frozen wilds of *Siberia* and *Tartary*, add keenness and rigour to the winters of *Kamtschatka*. Winter continues till the middle of *June*; from that month to the middle of *September* may be called summer, if a season filled with rain, and mists, and ungenial skies, merits that name. Rye, barley, and oats, are committed to the earth, but seldom come to perfection. The subsistence of the *Russians* and *Cossacks* depends therefore on importation from *Siberia*. In some parts grass grows to a great height, and hay of uncommon nutriment is harvested for the fattening of cattle. Grain is a luxury for the colonists only: the natives have other resources, the effects of necessity. Excepting in few places, this is a land of incorrigible barrenness. As soon as the sea otters and other precious furs are exhausted, *Kamtschatka* will be deserted by the *Russians*, unless they should think fit to colonize the continent of *America*, which the furs of that country, or the prospect of mineral wealth, may induce them to attempt.

CLIMATE.

Few ores have as yet been discovered in this peninsula: not that it wants either copper or iron; but every necessary in those metals is imported at so cheap a rate, that it is not worth while for a people ignorant in mining and smelting to search for them in the almost inaccessible mountains.

ORES.

From the climate and the barren nature of *Kamtschatka*, the reader need not be

PLANTS.

* *Descr. Kamtsch. Fr.* 340, 341.

† *Voyage* iii. 206, 332.

‡ *Descr. Kamtsch. Fr.*

348, and tab. iv. v. in which are given the course of the warm streams.

§ *Voy.* iii. 327.

surprized

surprized at the poverty of its *Flora*. It must not be supposed that the scanty enumeration of its plants arises from a neglect of search, or the want of a botanist to explore its vegetable kingdom. STELLER, a first-rate naturalist of Germany, who attended BERING in his last voyage, resided here a considerable time after his escape from that unfortunate expedition, expressly to complete his remarks in natural history. The result of his botanical researches was communicated to Doctor Gmelin, another gentleman sent by the Russian government to examine into the natural history of its dominions. Europe has from time to time been ransacked for men of abilities to perform this meritorious mission, and the fruits of their labors have been liberally communicated to a public thirsting for knowledge. The names of MULLER, GMELIN, STELLER, DE L'ISLE, KRASHANINICOFF, GUILDENSTADT, LEPECHIN, and PALLAS, will ever be held in respect, for adding to the stock of natural knowledge. But how much is it to be lamented that England wants a patron to encourage the translation of their works, locked up at present in Russian or German, concealed from the generality of readers, to the great suppression of knowledge!

I here give a list of the plants of *Kamtschatka* in systematic order; and from it annex an account of the uses made of them by the natives of the peninsula. I must not omit my thanks to the Rev. Mr. Lightfoot, and the Rev. Mr. Hugh Davies of Beaumaris, for the great assistance I received from them. Let me premise, that the plants marked *A.* are common to *America* and *Kamtschatka*; with *B.* to BERING's Isle; with *E.* to *England* or *Scotland*; and with *Virg.* those which extend to *Virginia*, or the eastern side of *North America* *. It is remarkable, that the *European* plants, which had deserted *Siberia* about the *Jenisei*, appear here in great abundance.

Veronica. <i>Gmel. Sib. iii. 219. N° 33.</i>	Sanguiforba canadensis. <i>A.</i>
V. incana.	Cornus suecica.
V. serpyllifolia. <i>E.</i>	Pulmonaria virginica. <i>A. Am. Acad. ii. 310.</i>
Iris fibirica.	Cerithe major. <i>A.</i>
Iris. <i>Gm. Sib. i. 30. N° 28.</i>	Cortusa Gmelini. <i>Am. Acad. ii. 313.</i>
Dactylis. <i>Gm. Sib. i. 130. N° 68.</i>	Anagallis. <i>Gm. Sib. iv. 87, 37.</i>
Bromus cristatus. <i>Amoen. Acad. ii. 312.</i>	Azalea procumbens. <i>E.</i>
Triticum. <i>Gm. Sib. i. 119. N° 56.</i>	Phlox fibirica. <i>Am. Acad. ii. 314.</i>
Plantago major. <i>A. E. Virg.</i>	Convolvulus perficus. <i>Ibid.</i>
Pl. asiatica.	

* Taken from Doctor Forster's *FLORA AMERICÆ SEPTENTRIONALIS*. It is highly probable that many, not noted as such, may be common to both sides of the continent, notwithstanding they escaped the notice of Steller or our navigators.

- Polemonium caeruleum. *A. E.*
 Lonicera Xylosteum. *A. E.*
 L. caerulea. *A. E.*
 Ribes alpinum. *A. E.*
 R. rubrum. *Virg.*
 R. grossularia. *A. Virg.*
 Claytonia virginica. *A. Am. Acad. ii. 310.*
 Salsola prostrata. *- 318.*
 Anabasis aphylla. *- 319.*
 Heuchera americana. *- 310.*
 Swertia dichotoma. *- 317.*
 Sw. corniculata. *- ibid.*
 Gentiana amarella. *E.*
 G. aquatica. *Am. Acad. ii. 316.*
 Heracleum panaces. *A.*
 Angelica archangelica. *E. Virg.*
 Ang. Sylvestris. *E. Virg.*
 Cicuta virosa. *- 318.*
 Chærophyllum Sylvestre. *- 319.*
 Chær. aureum? *- 310.*
 Sambucus racemosa. *- 317.*
 Tradescantia. *Virg?*
 Allium ursinum. *E. Virg.*
 Allium triquetrum. *- 318.*
 Liliun martegon. *- 319.*
 L. Camtschatcense. *A. Virg. Am. Acad. ii. 320.*
 Uvularia perfoliata. *- 310.*
 Convallaria bifolia. *- 319.*
 Juncus filiformis. *E. Virg.*
 J. campestris. *E.*
 Rumex acetosa. *Virg.*
 Melanthium sibiricum. *Am. Acad. ii. 320.*
 Trillium erectum. *- ii. 310.*
 Alisma plantago aquatica. *E.*
 Alsinanthes. *Gm. Sib. iv. 116. N° 86.*
 Epilobium latifolium. *- 317.*
 Vaccinium myrtillus. *A. E.*
 Vaccinium uliginosum. *E.*
 Vac. vitis idæa. *A. E.*
 Vac. oxycoccos. *E. Virg.*
 Erica. *Gm. Sib. iv. 130. N° 21. B.*
 Er. *Gm. Sib. iv. 131. N° 22. A.*
 Bryanthus. *Gm. Sib. iv. 133. N° 23.*
 Polygonum bistorta. *E.*
 Pol. viviparum. *E.*
 Adoxa moschatellina. *A. E.*
 Sophora Lupinoides. *Am. Acad. ii. 321.*
 Ledum palustre. *- 317.*
 Andromeda. *Gm. Sib. iv. 121. N° 9.*
 Chamberhodendros. *Gm. Sib. iv. 126.*
 Arbutus uva ursi. *E. Virg.*
 Pyrola rotundifolia. *E. Virg.*
 Tiarella trifoliata. *Am. Acad. ii. 322.*
 Sedum verticillatum. *ii. 323.*
 Prunus padus. *E.*
 Sorbus aucuparia. *E. Virg.*
 Cratægus oxyacantha. *Voyage, iii. 334.*
 Spiræa hypericifolia. *Am. Acad. ii. 310.*
 Sp. Sorbifolia. *- 324.*
 Spiræa. *Gm. Sib. iii. 192. N° 55.*
 Spiræa. *- 192. N° 56.*
 Sp. aruncus. *- 310.*
 Rosa alpina. *- 319.*
 Rubus Idæus. *A. E. Virg.*
 R. Cæsius. *E.*
 R. fruticosus. *E. Virg.*
 R. arcticus. *Virg.*
 R. chamæmorus. *E.*
 Fragaria vesca. *A. E.*
 Potentilla fruticosa. *E.*
 Dryas pentapetala. *- 310.*
 Actæa cimicifuga. *Am. Acad. ii. 325.*
 Papaver nudicaule. *- 317.*
 Aconitum napellus. *- 318.*

Anemone

- Anemone narcissifolia.*
Anem. ranunculoïdes.
Anem. Dichotoma. *Am. Acad.* ii. 310.
Thalictrum flavum. *E.*
Ranunculus.
Troillius europæus. *E.*
Helleborus trifolius. *Am. Acad.* ii. 327.
Bartsia pallida. - - - *ibid.*
Pedicularis verticillata.
Linnaea borealis. *Virg.*
Myagrum sativum. *E.*
Thlaspi bursa pastoris. *E. Virg.*
Arabis grandiflora.
Turritis hirsuta. *E.*
Geranium pratense. *E.*
Lathyrus. *Gm. Sib.* iv. 85.
Astragalus alopecuroides. *Am. Acad.* ii. 330.
Astr. alpinus.
Astr. Gm. Sib. iv. 44. N° 58.
Astr. physodes. *Am. Acad.* ii. 329.
Hypericum. *Gm. Sib.* iv. 279. N° 3.
Picris hieracioides. *E.*
Sonchus. *Gm. Sib.* ii. 13. N° 13.
Prenanthes repens. *Am. Acad.* ii. 331.
Serratula noveboracensis. *Virg.*
Cirsium. *Gm. Sib.* ii. 69. N° 49.
Cacalia suaveolens. *Am. Acad.* ii. 310.
Artemisia vulgaris. *A. E.*
Gnaphalium margaritaceum. *E. Virg.*
Erigeron acre. *A. E.*
Tussilago. *B. Gm. Sib.* ii. 145. N° 125.
Senecio. *B.* - - 136. N° 118.
After. A. B. Gm. Sib. ii. 175. N° 145.
After. - - 186. N° 152.
Solidago virga aurea. *A. B. E.*
Solidago. *Gm. Sib.* ii. 170. N° 190.
Cineraria sibirica.
Pyrethrum. *A. B. Gm. Sib.* ii. 203. N° 170.
Orchis bifolia. *E. Virg.*
Orchis latifolia. *E.*
Ophrys Camtschatca. *Am. Acad.* ii. 332.
Drachontium Camtschatcense. *Am. Acad.* ii. 332.
Carex panicea. *E. Virg.*
Carex. *Gm. Sib.* i. 139. N° 77.
Betula alba. *E.*
Betula nana. *E. Virg.*
Betula alnus. *A. E. Virg.*
Urtica dioica. *E.*
Sagittaria latifolia. *E.*
Pinus cembra.
Pinus Larix. *A. Virg.*
Pinus picea.
Salix retusa.
Salix viminalis. *E.*
Empetrum nigrum. *A. E. Virg.*
Populus alba. *E.*
Juniperus communis. *E.*
Equisetum hyemale. *E. Virg.*
Asplenium Rhyzophyllum. *Am. Acad.* ii. 311. *Virg.*
Lycopodium rupestre. *Virg.* *ibid.*
Lycop. Sanguinolentum. *ii. 333.*

USES.

The *Kamtschatkans* boast of their skill in the knowledge of the application of the vegetable kingdom to the uses of mankind. The *Siberians* cure the venereal disease by a decoction of the root of the *Iris Sibirica*, which acts by purging and vomiting. They keep the patient eight days in a stove, and place him in a bed of the leaves of

of the *Arctium Lappa*, or common Burdock, which they frequently change till the cure is effected.

The *Heracleum Panaces*, or Sweet grass, was a plant of the first use with the *Kamtschatskans*, and formerly made a principal ingredient in all their dishes; but so powerful does the love of hot liquors sway with the *Russians*, that, since their arrival, it is entirely applied to distillation. The beginning of July the more succulent stalks and leaves are gathered; after the down is scraped off with shells, they are layed to ferment; when they grow dry, they are placed in bags, and in a few days are covered with a saccharine powder: only a quarter of a pound of powder is collected from a pood, or thirty-six pounds of the plant, which tastes like liquorice. They draw the spirit from it by steeping bundles of it in hot water; then promote the fermentation in a small vessel, by adding the berries of the *Lonicera Xylosteum*, Sp. Pl. i. 248, and *Vaccinium uliginosum*, 499. They continue the process by pouring on more water, after drawing off the first: they then place the plants and liquor in a copper still, and draw off, in the common manner, a spirit equal in strength to brandy*. Accident discovered this liquor. One year, the natives happening to collect a greater quantity of berries of several kinds, for winter provision, than usual, found in the spring that a great quantity had fermented, and become useless as a food. They resolved to try them as a drink, and mixed the juice with water. Others determined to experience it pure; and found, on trial, the *Arctic* beatitude, drunkenness†. The *Russians* caught at the hint, introduced distillation, and thus are enabled to enjoy ebriety with the production of the country.

The *Moucho-more* of the *Russians*, the *Agaricus muscarius*, Sp. Pl. 1640, is another instrument of intoxication. It is a species of Toadstool, which the *Kamtschadales* and *Koriaks* sometimes eat dry, sometimes immersed in a fermented liquor made with the *Epilobium*, which they drink notwithstanding the dreadful effects. They are first seized with convulsions in all their limbs, then with a raving such as attends a burning fever; a thousand phantoms, gay or gloomy (according to their constitutions) present themselves to their imaginations: some dance; others are seized with unspeakable horrors. They personify this mushroom; and, if its effects urge them to suicide, or any dreadful crime, they say they obey its commands. To fit themselves for premeditated assassinations, they take the *Moucho-more*. Such is the fascination of drunkenness in this country, that nothing can induce the natives to forbear this dreadful potion‡!

* Voyage, iii. 337.

† Gmelin, Fl. Sib. i. 217.

‡ Hist. Kamtschatka, 99, 100.

SARANNE.

As a food, the *Saranne*, or *Lilium Kamtschatcense*, is among the principal. Its roots are gathered by the women in *August*, dried in the sun, and layed up for use: they are the best bread of the country; and after being baked are reduced to powder, and serve instead of flour in soups and several dishes. They are sometimes washed, and eaten as potatoes; are extremely nourishing, and have a pleasant bitter taste. Our navigators boiled and eat them with their meat. The natives often parboil, and beat it up with several sorts of berries, so as to form of it a very agreeable confection. Providentially it is an universal plant here, and all the grounds bloom with its flower during the season*. Another happiness remarked here is, that while fish are scarce, the *Saranne* is plentiful; and when there is a dearth of this, the rivers pour in their provisions in redoubled profusion. It is not to the labors of the females alone that the *Kamtschatkans* are indebted for these roots. The *æconomic Mouse*, p. 134. A. saves them a great deal of trouble. The *Saranne* forms part of the winter provisions of that little animal: they not only gather them in the proper season, and lay them up in their magazines, but at times have the instinct of bringing them out, in sunny weather, to dry them, lest they should decay†. The natives search for their hoards; but with prudent tenderness leave part for the owners, being unwilling to suffer such useful caterers to perish.

Let me add, that *STELLER* enumerates other species of the Lilly genus, which I believe are edible. Every species of fruit, except berries, is denied to this unkind climate; but the inhabitants use various sorts of them as wholesome substitutes, which they eat fresh, or make into palatable jams, or dress with their fish, either fresh or when preserved for winter use: such are those of the *Lonicera Xyleum* or *Gimoloff*, a sort of Honeysuckle: the *Rubus Chamæmorus*, *Morochka*, or Cloudberry: the *Vaccinium Myrtillus*, *Uliginosum*, *Vitis Idæa*, and *Oxycoccus*, or Bilberries, Marsh Bilberries, Red Bilberries, and Cranberries: the *Empetrum Nigrum*, or Heathberries: the *Prunus Padus*, or Bird Cherry: *Cratægus Oxyacantha*, or White Thorn with red and with black berries: the *Juniperus Communis*, or Common Juniper: and finally, of those of the *Sorbus Aucuparia*, or Common Service.

Of the *Epilobium Latifolium*, Sp. Pl. 494, or *Kipri*, is brewed a common beverage; and, with the assistance of the Sweet Plant, is made an excellent vinegar: the leaves are used as a tea, and the pith is mixed with many of the dishes, and served up green as a desert. When the infusion of it is mixed with the Sweet Herb in the distillation, much more brandy is procured than if water alone is used‡.

* Desc. Kamtsch. 363.

† PALLAS, Nov. Sp. Mur. 230.

‡ Desc. Kamtsch. 368.

The *Polygonum Bistorta*, Snake-weed, or *Jikoum*, is eaten fresh or dried, and often pounded with the *Caviar*. The *Chærophyllum Sylvestre*, Wild Chervil, or Cow-weed, the *Morkavai* of the natives, is eaten green in the spring, or made into four krout. The *Solidago Itschitschu*, Fl. Sib. ii. 170, is dried and boiled with fish; and the broth from it tastes as if the flesh of the *Argali* or wild sheep had been feethed in it. The root of *Kotkonnia*, a species of *Tradescantia*, is eaten either fresh, or used with the roes of fish: the berries have an agreeable acidity, like an unripe apple, but will not keep, therefore they must be eaten as soon as they are gathered. *Allium Urfinum*, *Tcheremcha*, our Wild Garlic, is very common, and useful in medicine as well as food; both *Russians* and natives gather it in great quantities for winter service: they steep it in water, then mix it with cabbage, onions, and other ingredients, and form out of them a ragout, which they eat cold. It is also the principal remedy for the scurvy. As soon as this plant appears above the snow, they seem to put this dreadful disorder at defiance, and find a cure almost in its worst stages. The *Potentilla fruticosa*, Sp. Pl. i. 709, or Shrubby Cinquefoil, is very efficacious in the dysentery, or in fresh wounds. The *Dryas pentapetala*, Sp. Pl. i. 717, or *Ichagban*, is employed in swellings or pains of the limbs. That dreadful poison the *Cicuta virosa*, Sp. Pl. i. 366, Water Hemlock, the *Omeg*, is applied to use, by the bold practitioners of this country, in cases of pains in the back. They sweat the patient profusely, and then rub his back with the plant, avoiding to touch the loins, which, they say, would bring on immediate death.

The trees of use are a dwarf species of *Pinus Cembra*, or Pine with edible kernels; it grows in great quantities on both the mountains and plains, covered with moss. It never grows upright, but creeps on the ground, and is therefore called by the *Russians*, *Slanetz*. The natives eat the kernels, with even the cones, which brings on a tenesmus; but the chief use of the tree is as a sovereign medicine in the scurvy. *BERING* taught the *Kamtshatkans* to make a decoction of it: but they have neglected his instructions, notwithstanding they saw numbers of his people restored to health in a short time, and snatched, as it were, from the jaws of death*. Even at this time the *Russian* colonists perish miserably with the disorder, notwithstanding the remedy is before their eyes.

The *Pinus Larix*, or Larch-tree, grows only on the river of *Kamtshatka*, and the streams which run into it. This tree is of the first use in the mechanical services of the country: with it they build their houses, their fortifications, and boats. They make use of the *Populus alba*, or White Poplar, for the same pur-

TREES.

* *Voyage*, iii. 332.—*Gm. Fl. Sib.* i. 181.—Respecting the trees, consult *Voyage*, iii. 332. *Desc. Kamtschatka*, 359, and the preceding catalogue.

poses. Of the *Betula alba*, or Common Birch, a tree so useful to these northern nations, they make their sledges and canoes; and cut the fresh bark into small slices like vermicelli, and eat it with their dried caviar: they also tap the trees, and drink the liquor without any preparation. With the bark of the alder they dye their leather; but that, and every tree they have near the coast, is stunted, so that they are obliged to go far inland for timber of proper size.

I must add, as a vegetable of use in œconomics, the *Triticum*, Gm. Sib. i. 119, N° 56, which grows in great quantities along the shores, which they mow, and work into mats, which serve for bed clothes and curtains; into mantles, smooth on one side, and with a pile on the other, which is water-proof. They also make with it sacks, and very elegant baskets; these, as well as the mats, they ornament with split whale-bones, and work into variety of figures*. The *Urtica dioica*, or Common Nettle, is another plant of great use: this they pluck in *August* or *September*, tie in bundles, and dry on their huts: they tear it to pieces, beat, and clean it; then spin it between their hands, and twist the thread round a spindle. It is the only material they have to make their nets; which, for want of skill in the preparation, will rot, and last no longer than one season †.

QUADRUPEDS.

In respect to the quadrupeds of this country, I have reason to think, from the great assistance I have received from the *Russian* academists, or their labors, that my account of them, in my zoological part of this Work, can receive little addition. I request that the *Brown Bear*, N° 20, may be substituted instead of the *Black*, N° 19, as the native of *Kamtschatka*. I was led into the mistake by the suspicions of a most able naturalist. I am since informed, by the best authority (that of Captain KING ‡) that it is the brown species which is found there; that they are carnivorous §, and prey at times on the *Argali* or wild sheep; but do not attack man, except urged by extreme hunger, or provoked by wounds, or by the slaughter of their young; when nothing but their death can secure the safety of the persons who fall in their way. In the first case, they will hunt mankind by the scent, and sacrifice them to their want of food, which usually is fish or berries.—The *Kamtschatkans* never read *Pope*, but observe his advice:

Learn from the Beasts the physic of the field.

The Bear is their great master; and they owe all their knowledge in medicine and surgery, and the polite arts, to this animal. They observe the herbs to which he has recourse when he is ill, or when he is wounded, and the same simples prove

* *Hist. Kamtschatka*, 373.

† Same, 375.

‡ See *Voy.* iii. 304 to 308, where Mr.

King gives a full account of the present method of hunting.
p. 58, l. 26, to change the word *carnivorous* into *animal*.

§ The reader is requested, at

equally

equally restorative to the two-legged Urfine race. The last even acknowledge the Bear as their dancing-master, and are most apt scholars in mimicking his attitudes and graces *. I was informed by one of the gentlemen who was on the voyage, that the *Sea Otter*, N° 36, was seen on the first arrival on the *American* coast; but, as it is not mentioned in that excellent and magnificent work till the arrival of the ships in *Nootka* sound, I will not insist on the accuracy of its latitude.

The *Argali* yields a dish of most excellent flavor. The natives work the horns into spoons, small cups, and platters; and have frequently a small one hanging at their belts, by way of a drinking horn, in their hunting expeditions †.

The Dogs are like the *Pomeranian*, but vastly larger; the hair rather coarser, and the usual color light dun, or dirty creme-color. Bitches are never used for the draught, but dogs alone; which are trained to it from their puppy-hood, by being tied with thongs to stakes, with their food placed at a small distance beyond their reach; so that by constant laboring and straining, they acquire both strength of limb and habit of drawing ‡.

The leonine and urfine Seals, and the Manati, must have been on their migrations during the time the navigators visited this peninsula; for they saw not one of those curious animals. The common Seals, being stationary, were met with in great numbers. The bottle-nosed Seal, or Sea-Lion of Lord *Anson*, is totally unknown in these seas. I refer the reader, for a view of the quadrupeds and birds of *Kamtchatka*, to the catalogue which Captain KING honored with a place in the third volume of the Voyage §. I shall only add, that the class of Auks is far the most numerous of any, and contains six species unknown to *Europe*; that the only bird which has escaped me is a small *Blue Petrel* ||, seen in numbers in about lat. 59. 48, off the northern part of the peninsula.

Kamtchatka is destitute of every species of serpent and frog. Lizards are very frequent, and are detested by the natives, who believe them to be spies sent by the infernal gods to examine their actions, and predict their deaths. If they catch one, they cut it into small pieces, to prevent it from giving any account of its mission: if it escapes out of their hands, they abandon themselves to melancholy, and expect every moment their dissolution; which often happens through fear, and serves to confirm the superstition of the country ¶. The air is very unfavorable

ARGALI.

DOGS.

SEALS.

REPTILES.

INSECTS.

* *Voy.* iii. 308.

† Same, 344.

‡ Same, 345.

§ By some typographical mistake, the greater part of the *webbed-footed birds* are, in the first edition, placed under the division of *clowen-footed*. The naturalist reader will easily see, that the birds, from CRANE, p. 357, to PIED OYSTER-CATCHER, ought to be placed in the division of *clowen-footed*; and from GREAT TERN, p. 356, to RED-FACED CORVORANT, p. 357, should be put after RED-THROATED DIVER, p. 358, the *webbed-footed*. || *Narrative*, ii. 246. ¶ *Descr. Kamtsch. Fr.* 509.

to insects, except lice and fleas, which are in all their quarters; and, filthy to relate! are eaten by these beastly people *. Bugs are acquisitions of late years, imported into the bay of *Awatcha*.

FISH.

The fish of *Kamtschatka* are with difficulty enumerated. There does not seem to be any great variety of genera; yet the individuals under each species are found in most astonishing abundance. Providence hath been peculiarly attentive to the natives of this peninsula, by furnishing them in so ample a manner, who for the greater part must for ever be deprived of support derived from grain and cattle. The vegetables they have are sufficient to correct the putrescent quality of the dried fish, and often form an ingredient in the dishes; which are prepared different ways. The *Joukola* is made of the salmon kind, cut into six pieces, and dried either in the open air or smoked: the roes are another dish in high esteem with them, either dried in the air, or rolled in the leaves of different plants, and dried before the fire. They can live a long time on a small quantity of this food, and eat with it the bark of birch or willow trees, to assist them in swallowing a food so very viscid; but their ambrosial repast is the *Huigul*, or fish flung into a pit till it is quite rotten, when it is served up in the state of carrion, and with a stench unsupportable to every nose but that of a *Kamtschatkan* †.

WHALE.

The Fin Whale, *Br. Zool.* iii. N° 18, is very frequent, and is of singular use to the inhabitants. They eat the flesh; preserve the fat for kitchen use and for their lamps; with the corneous laminae they sew the seams of their canoes, and make nets for the larger sort of fish; they form the sliders of their sledges with the under jaw-bones, and likewise work them into knives; with the blade-bones, worked down to a sharp edge, they form scythes, and most successfully mow the grass. The *Tschutski* verify the relation of *Pliny* ‡, and, like the *Gedrosi* of old, frame their dwellings with the ribs §; with the ligaments they make excellent snares for different animals; with the intestines dried, cleaned, and blown, they make bags for their grease and oil; and with the skins the soles of their shoes, and straps and thongs for various purposes. The *Tschutski* take these animals by harpooning; the *Oloutores*, in nets made of thongs cut out of the skins of the *Walrus*; and the *Kamtschatkans*, by shooting them with darts or arrows, the points of which, having been anointed with the juice of the *Zgate*, a species of *Anemone* and *Ranunculus* ¶, are so noxious as to bring speedy death from the slightest wound, like the celebrated poison of the *Paragua Indians*. The vast animals in question,

* *Descr. Kamtschatka*, Fr. 507.
lib. ix. c. 3.

§ *Voyage*, iii. 450.

† *Hist. Kamtschatka*, Engl. 194. Fr. 46.

‡ *Hist. Nat.*

¶ I cannot discover the species. *Gmelin*, in his *Flora Sibirica*, does not give the least account of these plants.

when struck with it, are infected with such agonies that they cannot bear the sea, but rush on shore, and expire with dreadful groans and bellowing.

The *Kasatka* or Grampus, *Br. Zool.* iii. N° 26, is very common in these seas: they are dreaded by the natives, who even make offerings to them, and entreat their mercy, lest they should overset their boats; yet, if these fish are thrown on shore, they apply them to the same uses as the Whale*.

The *Motkoia* or *Akoul*, or White Shark, *Br. Zool.* iii. N° 42, is among the useful fish. They eat the flesh, and form of the intestines and bladder, bags to hold their oil. In the chase of this fish they never call it by its name, for fear of provoking it to burst its bladder†.

Lampries, *Br. Zool.* iii. N° 27; Eels, — 57; Wolf-fish, — 65; common Cod-fish? — 73; Hadock, — 74; and Hake, — 81, are found in the *Kamtschatkan* sea: and I also suspect, that the three-bearded Cod, — N° 87, is also met with: it is called there *Morskje Nalimi*‡. An elegant species of Flounder, of excellent flavor, was taken here in abundance by our navigators: the back was studded with prickly tubercles, and marked longitudinally with lines of black on a brown ground. The *Ferchei*, possibly our Ruffe, — N° 127, is among the fish of the country; as is a species of the *English* Sticklebacks.

GRAMPUS.

But the fish of the first importance to the *Kamtschatkans*, and on which they depend for subsistence, are the anadromous kinds, or those which at stated seasons ascend the rivers and lakes out of the sea. These are entirely of the Salmon genus, with exception to the common Herring, which in autumn quits the salt water. It is sayed, that every species of Salmon is found here. I may with certainty adjoin, that several of the *Siberian* species, with variety peculiar to this country, ascend the *Kamtschatkan* rivers in multitudes incredible. The inhabitants dignify some of their months by the names of the fish. One is called *Kouiche*, or the month of *Red Fishes*; another, *Ajaba*, or that of *Little White Fish*; a third, *Kaiko*, or of the fish *Kaiko*; and a fourth, *Kijou*, or the month of the *Great White Fish*§. It is observable, that each shoal keeps apart from others of different species, and frequently prefers a separate river, notwithstanding the mouths may be almost contiguous. They often come up in such numbers as to force the water before them, and even to dam up the rivers, and make them overflow their banks; insomuch that, on the fall of the water, such multitudes are left on dry ground, as to make a stench capable of causing a pestilence, was it not fortunately dispersed by the violence of the winds; besides, the bears and dogs assist, by preying on them, to lessen the ill effects.

SALMON.

* *Descr. Kamtsch.* 462.

† Same, 466.

‡ *Br. Zool.* iii. 261.§ *Hist. Kamtsch.* 218.

Every

Every species of Salmon dies in the same river or lake in which it is born, and to which it returns to spawn. In the third year, male and female consort together, and the latter deposits its spawn in a hole formed with its tail and fins in the sand; after which both sexes pine away, and cease to live. A fish of a year's growth continues near the place, guards the spawn, and returns to the sea with the new-born fry in *November**. The Salmons of this country spawn but once in their lives: those of *Siberia* and *Europe*, the rivers of which are deep, and abound with insect food, are enabled to continue the first great command of nature during the period of their existence. In *Kamtschatka* the rivers are chilly, shallow, rapid, full of rocks, and destitute of nourishment for such multitudes: such therefore which cannot force their way to the neighborhood of the tepid streams, or get back to the sea in time, universally perish; but Providence has given such resources, in the spawners, that no difference in numbers is ever observed between the returning seasons. It is singular, that neither the lakes or rivers have any species of fish but what come from the sea. All the lakes (for this country abounds with them) communicate with the sea; but their entrance, as well as that of many of the rivers, is entirely barred up with sand brought by the tempestuous winds, which confine the fish most part of the winter, till they are released by the storms taking another direction.

TSHAWYTSCHA.

† P. D. 12.
P. 16.
V. 10.
A. 15.

The species which appears first is the *Tshawytscha*. This is by much the largest; it weighs sometimes between fifty and sixty pounds, and its depth is very great in proportion to the length. The jaws are equal, and never hooked: the teeth large, and in several rows: the scales are larger than those of the common Salmon; on the back dusky grey, on the sides silvery: the fins bluish white, and all parts unspotted: the tail is lunated: the flesh, during its residence in the sea, is red; but it becomes white in fresh waters. It is confined, on the eastern side of the peninsula, to the river of *Kamtschatka* and *Awatcha*; and on the western to the *Bolchaia-reka*, and a few others; nor is it ever seen beyond lat. 54. It enters the mouths of the rivers about the middle of *May*, with such impetuosity as to raise the water before it in waves. It goes in far less numbers than the other species; is infinitely more esteemed; and is not used as a common food, but reserved for great entertainments. The natives watch its arrival, which is announced by the rippling of the water; take it in strong nets; and always eat the first they take, under a notion that the omission would be a great crime.

* *Descr. Kamtsch.* 471.

† Numbers of rays in the dorsal, pectoral, ventral, and anal fins.

K A M T S C H A T K A.

CXXV

The *Nerka* is another species, called by the *Russians*, *Krasnaya ryba*, from the intense purplish redness of the flesh. It is of the form of the common Salmon; but never exceeds sixteen pounds in weight. When it first enters the rivers it is of a silvery brightness, with a bluish back and fins: when it leaves the sea the teeth are small, and jaws strait; but after it has been some time in the fresh water, the jaws grow crooked (especially in the male) and the teeth large. It begins to ascend the rivers in vast numbers in *June*; penetrates to their very sources; and returns in *September* to the sea, first resting for some time in the deep parts of the intervening lakes. It is taken in nets, either in the bays, as it approaches the rivers, or in the rivers, after it has quitted the sea*.

The *Kysutch*, or *Bjelaya ryba*, or White Fish of the *Russians*, ascends the rivers in *July*, particularly such as are discharged from the inland lakes, and remain till *December*, when all the old fish perish, and the fry take to the sea. The upper jaw of the male, in its last period, becomes crooked. This species has the form of a common Salmon, but never attains three feet in length. It is of a silvery glossy color, spotted about the back; but in the rivers acquires a reddish cast: the jaws are long and blunt: the teeth large: the flesh is reddish before it quits the sea; but in the fresh water grows white. It is reckoned the most excellent of the light-colored fish.

The *Keta* or *Kayko*, in form and size resembles the last; but the head is shorter and more blunt: the tail is lunated: the flesh white: the color of the scales a silvery white: the back greenish; and the whole free from spots. It ascends the rivers in *July*, and the fishery continues till *October*. This species is found in great abundance; and is so common, that the *Joukola* made with it is called *household bread*.

The *Gorbuscha*, or Hunch-back, arrives at the same time with the last. In form it resembles the Grayling: never exceeds a foot and a half in length: is of a silvery color, and unspotted: the tail forked: the flesh white. After it has been some time in the fresh water it changes its shape (the male especially) in a most surprising manner. The jaws and teeth grow prodigiously long, especially the upper, which at first is shortest, but soon shoots beyond the under, and grows crooked downwards; the body becomes emaciated, and the meat bad: but what is most characteristic, an enormous bunch rises just before the first dorsal fin, to which it owes its name. Its flesh is bad; so that this fish falls to the share of the dogs.

* This species is described (*Voyage*, iii. 351) under the name of *Red Fish*; the preceding, in p. 350, under that of *Tcharvitfi*.

NÆRKA.

P. D. 11.
P. 16.
V. 10.
A. 15.

KYSUTCH.

P. D. 11.
P. 14.
V. 10.
A. 14.

KETA.

P. D. 14.
P. 15.
V. 11.
A. 18.

GORBUSCHA.

P. D. 12.
P. 15.
V. 10.
A. 15.

The

MALMA.

P. D. 12.
P. 14.
V. 8.
A. 10.

The *Malma*, or *Golet* of the *Russians*, grows to the weight of twenty pounds, and to the length of about twenty-eight inches. It is the most slender and cylindrical of all the genus. The head resembles that of a trout: the scales are very small: the back and sides bluish, with scattered spots of scarlet red: the belly white: ventral and anal fins red: tail slightly forked. This and the two following are sporadic, going dispersedly, and not in shoals. It ascends the rivers with the last, and attains their very sources. It feeds on the spawn of the other species, and grows very fat. The natives salt those they take in autumn, and preserve frozen those which are caught when the frosts commence*.

MILKTSCHITSCH.

P. D. 11.
P. 14.
V. 10.
A. 13.

The *Milkschitsch* is a scarce species, in form like a young Salmon; but the scales larger in proportion, and the body more flat: it never exceeds a foot and a half in length: is of a silvery white, with a bluish back: nose conical: jaws equal: tail slightly forked.

MYKISS.

P. D. 12.
P. 14.
V. 10.
A. 12.

The *Mykiss*, appears at first very lean, but grows soon fat: it is very voracious: feeds not only on fish, but insects and rats, while swimming over the rivers; and is so fond of the berries of *vaccinium vitis idæa*, that it will dart out of the water, and snatch at both leaves and berries, which hang over the banks †. In shape it resembles a common Salmon: seldom grows above two feet long: has large scales, blunt nose, and numerous teeth: the back is dusky, marked with black spots; and on each side is a broad band of bright red: the belly white. It is a species of excellent flavor; but is scarcer than the other kinds. Its time of arrival is not known: M. STELLER therefore suspects that it ascends the rivers beneath the ice ‡.

KUNSHA.

The *Kunsha*, mentioned in page CIV, frequents the bays of this country, but never advances inland; and grows to the length of two feet: the nose is short and pointed: the back and sides dusky, marked with great yellowish spots, some round, others oblong: the belly white: the lower fins and tail blue: the flesh white, and excellent. It is a scarce fish in these parts; but near *Ochotsk* ascends the rivers in great shoals.

I conclude this division of the tribe with the common Salmon, which is frequent here, and, like the others, ascends the rivers, equally to the advantage of the natives of the country.

INGHAGHITSCH.

P. D. 8, 9
P. 12.
V. 10.
A. 12.

Of the Salmon which LINNÆUS distinguished by the title of *Coregoni* is the *Inghaghitsch*, which has the habit of a small carp, with very large scales: the jaws nearly of equal length: the eyes very great, and silvery: the teeth very minute: the body silvery, bluish on the back: tail forked: it does not exceed five inches

* Descr. Kamtsch. 482.

† Same, 482.

‡ Same, 482.

in length. It arrives in spring and autumn, and in both seasons is full of spawn, and smells like a smelt.

The *Innyagha* is another small kind, about five inches long, and not unlike the *S. Albula* of LINNÆUS. It is a rare species, and found but in few rivers. P.D. 9. P. 11. V. 8. A. 16.

The most singular is the *Ouiki*, or *Salmo Catervarius* of STELLER. It belongs to the *Osmeri* of LINNÆUS. Swims in immense shoals on the eastern coast of *Kamtchatka*, and the new-discovered islands, where it is often thrown up by the sea to the height of some feet, upon a large extent of shore: is excessively unwholesome as a food, and causes fluxes even in dogs. It never exceeds seven inches in length. Just above the side-line is a rough fascia, beset with minute pyramidal scales, standing upright, so as to appear like the pile of shag: their use is most curious—while they are swimming, and even when they are flung on shore, two, three, or even as many as ten, will adhere as if glued together, by means of this pile, inasmuch that if one is taken up, all the rest are taken up at the same time.

To conclude this list of *Kamtchatkan* Salmon, I must add the *Salmo Thymallus*, or Grayling; the *S. Cyldraceus*, before described; the *Salmo Albula*, Lin. Syst. 512; and the *Salmo Eperlanus*, or common Smelt, to those which ascend the rivers.—For this account I am indebted to Doctor PALLAS, who extracted it from the papers of STELLER, for the use of this Work.

The Herring, both the common and the variety, found in the gulph of *Bothnia*, called the *Membras*, and by the *Suedes*, *Stroeming*, Faun. Suec. p. 128, visit these coasts in shoals, perhaps equal to those of *Europe*. There are two seasons, the first about the end of *May*, the second in *October*. The first species are remarkably fine and large*; they ascend the rivers, and enter the lakes: the autumnal migrants are closed up in them by the shifting of the sand at the mouths of the entrance, and remain confined the whole winter. The natives catch them in summer in nets; and in winter in most amazing numbers, by breaking holes in the ice, into which they drop their nets, then cover the opening with mats, and leave a small hole for one of their companions to peep through, and observe the coming of the fish; when they draw up their booty: and string part on pack-thread for drying; and from the remainder they press an oil white as the butter of *Finland*†.

The sea, on which these people depend for their very existence, is finely adapted for the retreat and preservation of fish. It does not consist of a level uniform bottom, liable to be ruffled with storms, but of deep vallies and lofty

INNYAGHA.

OUIKI.

HERRING.

SEA.

* *Voyage*, iii. 350.† *Descr. Kamtsch.* 485.

mountains, such as yield security and tranquillity to the finned inhabitants. We find the soundings to be most unequal: in some places only twenty-two fathoms, in others the lead has not found a bottom with a hundred and sixty fathoms of line. On such places the fish might rest undisturbed during the rage of the tempestuous winters. I do not find the least notice of shells being met with in these seas: either there are none, or they are pelagic, and escape the eyes of the navigators. But nature probably hath made ample provision for the inhabitants of the sea, in the quantity of sea-plants which it yields; STELLER, the great explorer of this region, enumerates the following, many of which are of uncommon elegance:

<i>Fucus peucedanifolius</i> , Gm. <i>Hist. Fucor.</i> 76	<i>Fucus rosa marina</i> - - - 102
<i>Fucus turbinatus</i> - - - 97	<i>Fucus crenatus</i> - - - 160
<i>Fucus corymbiferus</i> , E. - - - 124	<i>Fucus fimbriatus</i> - - - 200
<i>Fucus dulcis</i> , E. - - - 189	<i>Fucus angustifolius</i> - - - 205
<i>Fucus tamariscifolius</i> *, E.	<i>Fucus agarum</i> - - - 210
<i>Fucus bifidus</i> - - - 201	<i>Fucus quercus marina</i> †
<i>Fucus polyphyllus</i> - - - 206	<i>Fucus vesiculosus</i> , Sp. Pl. 1626, E.
<i>Fucus clathrus</i> - - - 211	<i>Ulva glandiformis</i> - - - 232
<i>Fucus myrica</i> - - - 88	<i>Ulva Priapus</i> - - - 231

Of these the *Quercus marina* is used as a remedy in the dysentery; and the females of *Kamtschatka* tinge their cheeks with an infusion of the *Fucus tamariscifolius* in the oil of Seals.

TIDES.

In the harbours of Sts. *Peter* and *Paul* the greatest rise of the tides was five feet eight inches at full and change of the moon, at thirty-six minutes past four, and they were very regular every twelve hours †. The *Russian* philosophers observed here a singular phenomenon in the flux and reflux of the sea twice in the twenty-four hours, in which is one great flood and one small flood; the last of which is called *Manikha*. At certain times nothing but the water of the river is seen within its proper channel; at other times, in the time of ebb, the waters are observed to overflow their banks. In the *Manikha*, after an ebb of six hours, the water sinks about three feet, and the tide returns for three hours, but does not rise above a foot; a seven-hours ebb succeeds, which carries off the sea-water, and leaves the bay dry. Thus it happens three days before and

* *Hist. Kamtschatka*, 43.

† Same, 124.

‡ *Voyage*, iii. 323.

after the full moon; after which the great tide diminishes, and the *Manikha*, or little tide, increases *.

The rivers of the country rise in the midst of the great chain of mountains, and flow on each side into the seas of *Ochotsk*, or that of *Kamtschatka*. They furnish a ready passage in boats or canoes (with the intervention of carrying-places) quite across the peninsula. As has been mentioned, the waters yield no fish of their own, but are the retreat of myriads of migrants from the neighboring seas.

This peninsula, and the country to the west, are inhabited by two nations; the northern parts by the *Koriacs*, who are divided into the Rein-deer or wandering, and the fixed *Koriacs*; and the southern part by the *Kamtschatkans*, properly so called: the first lead an erratic life, in the tract bounded by the *Penschinska* sea to the south-east; the river *Kowyma* to the west; and the river *Anadir* to the north †. They wander from place to place with their Rein-deer, in search of the moss, the food of those animals, their only wealth ‡. They are squalid, cruel, and warlike, the terror of the fixed *Koriacs*, as much as the *Tschutski* are of them. They never frequent the sea, nor live on fish. Their habitations are *jourts*, or places half sunk in the earth: they never use *baglans*, or summer-houses elevated on posts, like the *Kamtschatkans*: are in their persons lean, and very short: have small heads and black hair, which they shave frequently: their faces are oval: nose short: their eyes small: mouth large: beard black and pointed, but often eradicated.

The fixed *Koriacs* are likewise short, but rather taller than the others, and strongly made: they inhabit the north of the peninsula: the *Anadir* is also their boundary to the north; the ocean to the east; and the *Kamtschatkans* to the south. They have few Rein-deer, which they use in their sledges; but neither of the tribes of *Koriacs* are civilized enough to apply them to the purposes of the dairy. Each speak a different dialect of the same language; but the fixed in most things resemble the *Kamtschatkans*; and, like them, live almost entirely on fish. They are timid to a high degree, and behave to their wandering brethren with the utmost submission; who call them by a name which signifies *their slaves*. These poor people seem to have no alternative; for, by reason of the scarcity of Rein-deer, they depend on these tyrants for the essential article of cloathing. I cannot trace the origin of these two nations; but from the features may pronounce them offspring of *Tartars*, which have spread to the east, and degenerated in size and strength by the rigour of the climate, and often by scarcity of food.

NATIVES.

KORIACS.
WANDERING.

FIXED.

* *Descr. Kamtsch.* 510.† *Hist. Kamtsch.* 136.

‡ See p. 25 of this Work.

The

KAMTSCHAT-
KANS.

The true *Kamtschatkans* * possess the country from the river *Ukoi* to the southern extremity, the cape *Lopatka*. They are supposed, by M. STELLER, to have been derived from the *Mongolian Chinese*, not only from a similarity in the termination of many of their words, but in the resemblance of their persons, which are short. Their complexion is swarthy: their beard small: their hair black: face broad and flat: eyes small and sunk: eye-brows thin: belly pendent: legs small—circumstances common to them and the *Mongolians*. It is conjectured, that in some very remote age they fled hither, to escape the yoke of the eastern conquerors, notwithstanding they believe themselves to be aboriginal, created and placed on the spot by their god *Koutkou*.

RELIGION.

In respect to their deity, they are perfect minute philosophers. They find fault with his dispensations; blaspheme and reproach him with having made too many mountains, precipices, breakers, shoals, and cataracts; with forming storms and rains; and when they are descending, in the winter, from their barren rocks, they load him with imprecations for the fatigue they undergo. In their morals they likewise bear a great similitude to numbers among the most polished rank in the *European* nations—they think nothing vitious that may be accomplished without danger; and give full loose to every crime, provided it comes within the pale of security.

GENII.

They have also their lesser deities, or genii. Each of them have their peculiar charge; to these they pay considerable veneration, and make offerings to them, to divert their anger or ensure their protection. The *Kamouli* preside over the mountains, particularly the *vulcanic*; the *Ouchakthou*, over the woods; *Mitg*, over the sea; *Gaetch*, over the subterraneous world; and *Fouila* is the author of earthquakes. They believe that the world is eternal; that the soul is immortal; that in the world below it will be reunited to the body, and experience all the pains usual in its former state; but that it never will suffer hunger, but have every thing in great abundance: that the rich will become poor, and the poor rich; a sort of just dispensation, and balance of former good and evil †. But almost all these superstitions are vanished by the attention of the *Russians* to their conversion. There are few who have not embraced the Christian religion. Churches have been built, and schools erected, in which they are successfully taught the language of their conquerors, which has already almost worn out that of the native people.

NUMBERS OF
PEOPLE.

The country was very populous at the arrival of the *Russians*; but, after a dreadful visitation of the small-pox, which in 1767 swept away twenty thousand

* The most proper word for the natives of this country is *Kamtschadales*; but as I have on many occasions used this, I wish to continue it.

† *Hist. Kamtsch.* 68, 71.

souls *, at present there are not above three thousand who pay tribute, the inhabitants of the *Kuril* isles included. Here are about four hundred of the military *Russians* and *Cossacks*, besides a number of *Russian* traders and emigrants perpetually pouring in, who intermix with the natives † in marriage, and probably in time will extinguish the aboriginal race. The offspring is a great improvement; for it is remarked, that the breed is far more active than the pure *Russian* or *Cossack*. Sunk in lordly indolence, they leave all the work to the *Kamtschatkans*, or to their women; and suffer the penalty of their laziness, by the scurvy in its most frightful forms.

The *Kamtschatkans* seem to retain the antient form of their dress; but during summer it is composed of foreign materials; in the warm season both sexes use nankeen, linen, and silk; in winter, the skins of animals well dressed: the dress of men and women resembles a carter's frock with long sleeves, furred at the wrists, the bottom, and about the neck. On their head is a hood of fur, sometimes of the shaggy skin of a dog, and often of the elegant skin of the earless Marmot. Trousers, boots, and furred mittens, compose the rest. The habit of ceremony of a *Toion* or chieftain is very magnificent, and will cost a hundred and twenty rubels: in antient times it was hung over with the tails of animals, and his furred hood flowed over each shoulder, with the respectability of a full-bottomed perriwig in the days of *Charles II.* The figure given in the *History of Kamtschatka*, translated into *French*, exhibits a great man in all his pride of dress ‡; but so rapidly has the present race of natives copied the *Russians*, that possibly in so short a space as half a century, this habit, as well as numbers of other articles and customs, may be ranked among the antiquities of the country.

DRESS.

Bows and arrows are now quite disused. Formerly they used bows made of larch-wood, covered with the bark of the birch. The arrows were headed with stone or bone, and their lances with the same materials. Their armour was either mats, or formed of thongs cut out of the skins of Seals, and sewed together, so as to make a pliable cuirass; which they fixed on their left side; a board defended their breast, and a high one on their back defended both that and the head.

ARMS.

Their savage and beastly hospitality is among the obsolete customs. Formerly, as a mark of respect to a guest, the host set before him as much food as would serve ten people. Both were stripped naked: the host politely touched nothing, but compelled his friend to devour what was set before him, till he was

HOSPITALITY.

* *Voyage*, iii. 366. † Same, 367. ‡ See *Hist. Kamtschatka*, tab. vi.—It differs much from the habit of ceremony described by Captain KING, iii. 377.

quite

quite gorged; and at the same time heated the place, by incessantly pouring water on hot stones, till it became unsupportable. When the guest was crammed up to the throat, the generous landlord, on his knees, stuffed into his mouth a great slice of whale's fat, cut off what hung out, and cried, in a surly tone, *Tana*, or *There!* by which he fully discharged his duty; and, between heat and cramming, obliged the poor guest to cry for mercy, and a release from the heat, and the danger of being choaked with the noble welcome: oftentimes he was obliged to purchase his dismissal with most costly presents; but was sure to retaliate on the first opportunity*.

DWELLINGS.

From the birds they learned the art of building their *balagans* or summer-houses. They seem like nests of a conic form, perched on high poles instead of trees; with a hole on one side, like that of the magpie, for the entrance. Their *jourts*, or winter residences, are copied from the *æconomic Mouse*, p. 134; but with less art, and less cleanliness. It is partly sunk under ground; the sides and top supported by beams, and wattled, and the whole covered with turf. In this they live gregariously, to the number of six families in each; in a state intolerable to an *European*, by reason of smoke, heat, and stench, from their store of dried or putrid fish, and from their laziness, in never going out to perform their offerings to *Cloacina*†.

ROADS TO KAMTS-
CHATKA.

Instigated by avarice, the *Russians* made a conquest of this savage country; and found their account in it, from the great value of its furry productions. They have added to their dominions this extremity of *Asia*, distant at least four thousand miles from their capital. The journey to it is still attended with great difficulties, through wild and barren regions, over dreadful mountains; and possibly impracticable, but for the multitude of *Siberian* rivers, which, with short intervals of land, facilitate the passage. Travellers usually take their departure out of *Siberia* from *Jakutz*, on the river *Lena*, in lat. 62: they go either by water along the river, to its conflux with the *Aldun*, along the *Aldun* to the *Mai*, and from that river up the *Judoma*; and from near the head of that river to *Ochotsk*, the port from whence they embark, and cross the sea of *Ochotsk* to *Bolschaia-reka*, the port of the western side of *Kamtschatka*. The whole journey usually takes up the short summer: that over the hills to *Ochotsk* (and which is most convenient) was performed by *STELLER* in thirty-four days, excluding seven of rest‡.

KURIL ISLES.

The *Kuril* or *Kurilski* isles, which probably once lengthened the peninsula of *Kamtschatka*, before they were convulsed from it, are a series of islands running

* *Hist. Kamtsch.* 107 to 109.† *Ellis's Nar.* ii. 217.‡ *Descr. Kamtsch.* 602.

south from the low promontory *Lopatka*, in lat. 51; between which and *Shoomska*, the most northerly, is only the distance of one league. On the lofty *Paramoufer*, the second in the chain, is a high-peaked mountain, probably volcanic *: on the fourth, called *Araumakutan*, is another volcano †; on *Urufs* is another; on *Storgu* two; and on *Kunatir*, or *Kaunachir*, one. These three make part of the group which pass under the name of the celebrated land of *Jeso* ‡. Japan abounds with volcanoes §; so that there is a series of spiracles from *Kamtschatka* to *Japan*, the last great link of this extensive chain. Time may have been, when the whole was a continuation of continent, rent asunder before the laboring earth gave vent to its inward struggles, through the mouths of the frequent volcanoes. Even with these discharges, *Japan* has suffered considerably by earthquakes ||. Volcanoes are local evils, but extensive benefits.

VULCANIC.

The *Russians* soon annexed these islands to their conquests. The sea abounded with Sea Otters, and the land with Bears and Foxes; and some of them sheltered the Sable. Temptations sufficient for the *Russians* to invade these islands; but the rage after the furs of the Sea Otters has been so great, that they are become extremely scarce, both here and in *Kamtschatka*.

The islands which lie to the east of that peninsula, and form a chain between it and *America*, must now engage our attention. They lie in the form of a crescent, and are divided into three groupes; the *Aleutian*, the *Andreanoffskie*, and the *Fox* isles: but mention must first be made of *BERING'S* isle, and that of *Mednoi*, and one or two small and of little note. These lie about two hundred and fifty versts to the east of the mouth of *Kamtschatka* river. *BERING'S* is in lat. 55, where that great seaman was shipwrecked in November 1741, on his return from his *American* discoveries; and, after enduring great hardships, perished miserably. Numbers of his people died of the scurvy, with all the dreadful symptoms attendant on those who perished by the same disease in Lord *Anson's* voyage ¶; the survivors, among whom was the philosopher *STELLER*, reached *Kamtschatka* in August 1742, in a vessel constructed out of the wreck of their ship. The isle is about seventy or eighty versts long; consists of high granitical mountains, craggy with rocks and peaks, changing into free-stone towards the promontories. All the vallies run from north to south: hills of sand, formed by inundations of the sea, floated wood, and skeletons of marine animals, are found at great distances from the shore, at thirty fathoms perpendicular height above the high-water level; which serve as a monument of the violent inundations that the volcanoes before mentioned

BERING'S ISLE.

* *Voyage*, iii. 388.† *Decouvertes des Russes*, i. 113.

‡ These isles are marked in a

Russian map, communicated to me by Doctor *PALLAS*, with MS. notes.§ *Kampfer Hist. Japan*.

i. 305.

|| Same, 304.

¶ Book i. ch. x. and *Decouvertes*, &c. ii. 293.

produce in these seas. Farther, the effect of the meteoric waters, and of the frosts, causes the rocks very sensibly to shiver and fall down, and precipitates every year some great mass into the sea, and changes the form of the island. The others are in the same case; so nothing is more probable than their gradual diminution, and, by consequence, the more easy communication formerly from one continent to the other, before the injuries of time, the effects of volcanoes, and other catastrophes, had insensibly diminished the size, and perhaps the number of these isles, which form the chain; and had eaten in the coasts of *Asia*, which every where exhibit traces of the ravages they have undergone *.

The island swarmed with Sea Otters, which disappeared in *March*. The Urine Seal succeeded them in vast numbers, and quitted the coast the latter end of *May*. The *Leonine* Seal, the *Lachtach* or Great Seal, and the *Manati*, abounded, and proved the support of the wrecked during their stay. *Arctic* Foxes were seen in great multitudes, and completed the list of *Quadrupeds*. The same species of water-fowl haunt the rocks, and the same species of fish ascend the rivers, as do in *Kamtchatka*. The tides rise here seven or eight feet. The bottom of the sea is rocky, correspondent with the island.

The few plants of this island, which have not been discovered in *Kamtchatka*, are as follow :

Campanula, *Gm. Sib.* iii. 160, 28.

Leontodon taraxacum, *A. E. Virg.*

Hieracium murorum, *β. E.*

Tanacetum vulgare, *E.*

Gnaphalium dioicum, *A.*

Senecio, *Gm. Sib.* ii. 136, N° 118.

Arnica montana.

Chrysanthemum leucanthemum, *A. Virg.*

These, with a few creeping Willows, added to those in the *Kamtchatkan Flora*, form the sum of those observed in *Bering's* island.

MEDNOI.

Mednoi, or the copper island, lies a little to the south-east. A great quantity of native copper is found at the foot of a ridge of calcareous mountains on the eastern side, and may be gathered on the shores in vast masses, which seems originally to have been melted by subterraneous fires. This island is full of hillocks, bearing all the appearance of volcanic spiracles; which makes it probable, that these islands were rent from the continent by the violence of an earth-

* I am indebted to Doctor PALLAS for the whole account of this chain of islands, except where I make other references.—My extracts are made from a *French Memoir*, drawn up by my learned friend, and communicated to me.

ALEUTIAN, ANDREAN, AND FOX ISLANDS.

CXXXV

quake. Among the float-wood off this island is camphor, and another sweet wood, driven by the currents from the isle of Japan.

The *Aleutian* group lies in the bend of the crescent, nearly in mid-channel between *Asia* and *America*, lat. 52. 30, and about two hundred versts distant from *Mednoi*. It consists of *Attok*, *Schemija*, and *Semitchi*. The first seems to surpass in size *Bering's* isle; but resembles it in its component parts, as do the other two. *Attok* seems to be the island which *Bering* called *Mount St. John*. These are inhabited by a people who speak a language different from the northern *Asiatics*; they seem emigrants or colonists from *America*, using a dialect of the neighboring continent. They were discovered in 1745, by *Michael Nevoditskoff*, a native of *Tobolski*, who made a voyage, at the expence of certain merchants, in search of furs, the great object of these navigations, and the leading cause of discoveries in this sea. This voyage was marked with horrid barbarities on the poor natives. The marine animals must have swarmed about this period, and for some time after. Mention is made of adventurers who brought from hence to *Kamtchatka* the skins of 1,872 Sea Otters, 940 females, and 715 cubs. Another, on a small adjacent isle, killed 700 old, and 120 cub Sea Otters, 1,900 blue Foxes, 5,700 black Urfine Seals, and 1,310 of their cubs *. The blue Foxes abound in these islands, brought here on floating ice, and multiply greatly. The blue variety is ten times more numerous here than the white; but the reverse is observed in *Siberia*. They feed on fish, or any carrion left by the tide. The natives bore their under lips, and insert in them teeth cut out of the bones of the Walrus; and they use boats covered with the skins of sea animals.

ALEUTIAN ISLES.
THE NEAREST.

At a great distance from the first group is the second, or farthest *Aleutian* isles: of those we know no more than that the natives resemble those of the first. By the vast space of sea which Doctor *PALLAS* allows between the two groups, Captain *COOK* is fully vindicated for omitting, in his chart, the multitude of islands which, in the *Russian* maps, form almost a complete chain from *BERING's* isle to *America*. Dr. *PALLAS's* information must have been of the best kind; and he and our illustrious navigator coincide in opinion, that they have been needlessly multiplied, by the mistake of the *Russian* adventurers in the reckoning, or, on seeing the same island in different points of view, putting it down as a new discovery, and imposing on it a new name. The *Andreanoffskie*, so called from their discoverer (in 1761) *Andrean Tolstykh*, succeed. On two of them are vulcanoes. Lastly, are the *Fox* islands, so called from the number of black, grey, and red Foxes found on them; the skins of which are so coarse, as to be of little

ALEUTIAN ISLES.
THE FARTHEST.

ANDREAN ISLES.

FOX ISLES.

* *Coxe's Russ. Disc.*

value. The natives bore their noses and under lips, and insert bones in them by way of ornament. Among the last in this group is *Oenolascha*, which was visited by Captain Cook. This lies so near to the coast of *America*, as to claim a right to be considered as an appurtenance to it. I shall therefore quit these detached paths for the present, and, in pursuance of my plan, trace the coasts of the northern division of the great continent, from the place at which it is divided from *South America*.

CALIFORNIA.

After traversing obliquely the *Pacific Ocean*, appears *California*, the most southerly part of my plan on this side of the new world. This greatest of peninsulas extends from Cape *Blanco*, lat. 32, to Cape *St. Lucas*, lat. 23; and is bounded on the east by a great gulph, called the *Vermillion* sea, receiving at its bottom the vast and violent river *Cokerado*. The west side is mountainous, sandy, and barren*, with several volcanoes on the main land and the isles †: the eastern, varied with extensive plains, fine vallies watered with numbers of streams, and the country abounds with trees and variety of fruits. The natives, the most innocent of people, are in a state of paradisaical nature, or at least were so before the arrival of the *European* colonists among them. The men went nearly naked, without the consciousness of being so. The head is the only part they pay any attention to; and that is surrounded with a chaplet of net-work, ornamented with feathers, fruits, or mother of pearl. The women have a neat matted apron falling to their knees: they sling over their shoulders the skin of some beast, or of some large bird, and wear a head-dress like the other sex. The weapons of the country are bows, arrows, javelins, and bearded darts, calculated either for war or the chase. In the art of navigation, they have not got beyond the bark-log, made of a few bodies of trees bound parallel together; and in these they dare the turbulent element. They have no houses. During summer they shelter themselves from the sun under the shade of trees; and during nights sleep under a roof of branches spread over them. In winter they burrow under ground, and lodge as simply as the beasts themselves: such however was their condition in 1697; I have not been able to learn the effect of *European* refinement on their manners. Numbers of settlements have, since that time, been formed there, under the auspices of the Jesuits. The Order was of late years supported by the Marquis *de Valero*, a patriotic and munificent nobleman ‡, who favored their attempts, in order to extend the power and wealth of the *Spanish* dominions;

* *Shelvoke*, in *Harris's Coll.* i. 233. † *Hackluyt*, iii. 401.—*Hist. California*, i. 140.

‡ This is the nobleman whom the writer of Lord *Anson's Voyage* stigmatizes with the epithet of *munificent bigot*. It was not by a reverend author, as is generally supposed, but by a person whose principles were unhappily in the extreme of another tincture.—Having from my youth been honored with

dominions; and, I believe with success. The land and climate, particularly *Monterey*, in lat. 36, is adapted for every vegetable production; and a good wine is made from the vines introduced by the colonists.

The natives are a fine race of men, tall, brawny, and well made; with black hair hanging over their shoulders, and with copper-colored skins. We have a most imperfect account of the animals of this peninsula. It certainly possesses two wool-bearing quadrupeds. As to birds, I doubt not but the Jesuits are right, when they say, that it has all that are found in *New Mexico* and *New Spain*. The capes of *Florida* and cape *St. Lucas* lie nearly under the same latitudes, and form the southern extremities of *North America*; but our ignorance of the productions of the vast provinces of *New Mexico*, will leave ample subject to a future naturalist to supply my deficiencies.

This country was discovered under the auspices of the great *Cortez*, and Don *Antonio de Mendoza*, cotemporary viceroy of the new conquests: each, actuated by a glorious spirit of emulation, sent out commanders to advance the welfare of their country to the utmost; and *Francisco Ulloa*, in 1539, and *Fernando Alarcon*, in 1540, soon discovered this peninsula, and other adjacent regions, sources of immense wealth to their country*. The *Spanish* adventurers of these early times sailed as high as lat. 42; and named, in honor of the viceroy, the farthest point of their discovery *Cabo di Mendoza*.

Our celebrated navigator, Sir *Francis Drake*, on June 5th 1578, touched on this coast, first in lat. 43; but was induced, from the severity of the cold, to sail to lat. 38, where he anchored in a fine bay. He found the natives to be a fine race of men, naked as the *Californians*, with the same kind of head-dresses; and the females habited like their southern neighbors. He was treated like a deity. The chief of the country, by the resignation of his crown or chaplet, his sceptre, i. e. calumet, and other insignia of royalty, vested in Sir *Francis* the whole land; which he named *New Albion*, from its white cliffs, and took formal posses-

with the friendship of the *Anson* family, I can give a little history of the compilation of the Voyage:—A Mr. *Paman* first undertook the work. It was afterwards taken out of his hands, and placed in those of the reverend Mr. *Walters*, chaplain of the *Centurion*; but he had no share in it, farther than collecting the materials from the several journals: those were delivered to Mr. *Benjamin Robins*, a most-able mathematician, and the most elegant writer of his time. He was son of a quaker-taylor at *Bath*, whom I have often seen: a most venerable and respectable old man. Mr. *Robins* unfortunately forgot that he was writing in the character of a divine; and it was not thought proper to affront Mr. *Walters*, by omitting his name in the title-page, as he had taken in subscriptions: this, therefore, will account for the constant omission of the word *Providence*; in a voyage which abounded with such signal deliverances.

* A full account of these voyages may be seen in *Hackluyt*, iii. 397, &c.

NATIVES.

SIR FRANCIS
DRAKE.

tion.

sion of in the name of his royal mistress. We may be thankful that we never claimed the cession: it forms at present part of *New Mexico*; and probably is reserved for future contests between the *Spaniards* and the offspring of our late colonists. Sir *Francis* found this country a warren of what he calls, 'a strange kind of Conies, with heads as the heads of ours; the feet of a Want, i. e. a Mole, and the tail of a Rat, being of a great length: under her chin is on either side a bag, into the which she gathereth her meat when she hath filled her bellie abroad.' The common people feed on them, and the king's coat was made of their skins*. This species is to be referred to the division of Rats with pouches in each jaw; and has never been observed from that period to this.

CAPTAIN COOK.

Exactly two hundred years from that time the coast was again visited by an *Englishman*, who in point of abilities, spirit, and perseverance, may be compared with the greatest seaman our island ever produced. Captain *JAMES COOK*, on March 7th 1778, got sight of *New Albion*, in lat. 44. 33 north, and long. 235. 20 east, about eight leagues distant. The sea is here (as is the case the whole way from *California*) from seventy-three to ninety fathoms deep. The land is moderately high, diversified with hills and vallies, and every where covered with wood, even to the water's edge. To the most southern cape he saw he gave the name of *Cape Gregory*, its latitude 43. 30: the next, which was in 44. 6, he called *Cape Perpetua*; and the first land he saw, which was in 44. 55, *Cape Foul-weather*. The whole coast, for a great extent, is nearly similar, almost strait, and harborless, with a white beach forming the shore. While he was plying off the coast, he had a sight of land in about lat. 43. 10, nearly in the situation of *Cape Blanco de St. Sebastian*, discovered by *Martin d'Aguilar* in 1603. A little to the north, the *Oregon*, or great river of the *West*, discharges itself into the *Pacific Ocean*. Its banks were covered with trees; but the violence of the currents prevented *D'Aguilar* from entering into it†. This, and the river of *Bourbon*, or *Port Nelson*, which falls into *Hudson's Bay*; that of *St. Laurence*, which runs to the east; and the *Mississipi*, which falls into the bay of *Mexico*, are said to rise within thirty miles of each other. The intervening space must be the highest ground in *North America*, forming an inclined plane to the discharges of the several rivers. An ill-fated traveller, of great merit, places the spot in lat. 47, west long. from *London* 98, between a lake from which the *Oregon* flows, and another called *White Bear* lake, from which the *Mississipi* ‡.

* *Hackluyt*, iii. 738.† *Hist. California*, ii. 292.‡ *Carver's Travels*, 76, 121.—Mr. *Carver*, captain of an independent company, penetrated far inland into *America*; and published an interesting account of his travels. This gentleman was suffered to perish for want, in *London*, the seat of literature and opulence.

This exalted situation is part of the *Shining Mountains*, which are branches of the vast chain which pervades the whole continent of *America*. It may be fairly taken from the southern extremity, where *Staten Land* and *Terra del Fuego* rise out of the sea, as insulated links, to an immense height, black, rocky, and marked with rugged spiry tops, frequently covered with snow. *New Georgia* may be added, as another, horribly congenial, rising detached farther to the east. The mountains about the streights of *Magellan* soar to an amazing height, and infinitely superior to those of the northern hemisphere, under the same degree of latitude. From the north side of the streights of *Magellan*, they form a continued chain through the kingdoms of *Chili* and *Peru*, preserving a course not remote from the *Pacific Ocean*. The summits, in many places, are the highest in the world. There are not less than twelve which are from two thousand four hundred toises high, to above three thousand. *Pichincha*, which impends over *Quito*, is about thirty-five leagues from the sea, and its summit is two thousand four hundred and thirty toises above the surface of the water; *Cayambé*, immediately under the equator, is above three thousand; and *Chimborazo* higher than the last by two hundred. Most of them have been volcanic, and in different ages marked with eruptions far more horrible than have been known in other quarters of the globe. They extend from the equator, through *Chili*; in which kingdom is a range of vulcanoes, from lat. 26 south, to 45. 30*, and possibly from thence into *Terra del Fuego* itself, which, forming the streights of *Magellan*, may have been rent from the continent by some great convulsion, occasioned by their laborings; and *New Georgia*, forced up from the same cause. An unparalleled extent of plain appears on their eastern side. The river of *Amazons* runs along a level clothed with forests, after it bursts from its confinement at the *Pongo of Borjas*, till it reaches its sea-like discharge into the *Atlantic Ocean*.

In the northern hemisphere, the *Andes* pass through the narrow isthmus of *Darien*, into the kingdom of *Mexico*, and preserve a majestic height and their volcanic disposition. The mountain *Popocatepec* made a violent eruption during the expedition of *Cortez*, which is most beautifully described by his historian, *Antonio de Solis* †. This, possibly, is the same with the vulcano observed by the Abbé *d'Auteroche*, in his way from *Vera Cruz* to *Mexico*, which, from the nakedness of the lavas, he conjectured to have been but lately extinguished ‡. From the kingdom of *Mexico*, this chain is continued northward, and to the east of *California*; then verges so greatly towards the west, as to leave a very

* *Ovalli, Hist. Chili, in Churchill's Coll. iii. 13.*

† *Conquest of Mexico, book iii. ch. iv.*

‡ *Voy. to California, 33.*

inconsiderable

inconsiderable space between it and the *Pacific Ocean*; and frequently detached branches jut into the sea, and form promontories; which, with parts of the chain itself, were often seen by our navigators in the course of their voyage. Some branches, as we have before observed, extend towards the east, but not to any great distance. A plain, rich in woods and savannas, swarming with Bisons or Buffaloes, Stags, and *Virginian Deer*, with Bears, and great variety of game, occupies an amazing tract, from the great lakes of *Canada*, as low as the gulph of *Mexico*; and eastward to the other great chain of mountains, the *Apalachian*, which are the *Alps* of that side of northern *America*. I imagine its commencement to be about lake *Champlain* and lake *George*, with branches pointing obliquely to the river *St. Laurence* eastward, and rising on its opposite coasts: others extending, with lowering progress, even into our poor remnant of the new world, *Nova Scotia*. The main chain passes through the province of *New York*, where it is distinguished by the name of the *Highlands*, and lies within forty miles of the *Atlantic*. From thence it recedes from the sea, in proportion as it advances southward; and near its extremity in *South Carolina* is three hundred miles distant from the water. It consists of several parallel ridges*, divided by most enchanting vallies, and generally cloathed with variety of woods. These ridges rise gradually from the east one above the other, to the central; from which they gradually fall to the west, into the vast plains of the *Mississipi*. The middle ridge is of an enormous bulk and height. The whole extends in breadth about seventy miles; and in many places leaves great chasms for the discharge of the vast and numerous rivers which rise in the bosoms of the mountains, and empty themselves into the *Atlantic* ocean, after yielding a matchless navigation to the provinces they water. In p. xcv, I have given a view of the immense elevated plain in the *Russian* empire. Beyond the branch of the *Apalachian* mountains, called *The Endless*, is another of amazing extent, nearly as high as the mountains themselves†. This plain, (called the *Upper Plains*) is exceedingly rich land; begins at the *Mohock's* river; reaches to within a small distance of lake *Ontario*; and to the westward forms part of the extensive plains of the *Ohio*, and reaches to an unknown distance beyond the *Mississipi*. Vast rivers take their rise, and fall to every point of the compass; into lake *Ontario*, into *Hudson's* river, and into the *Delawar* and *Susquehanna*. The tide of the *Hudson's* river flows through its deep-worn bed far up, even to within a small distance of the head of the *Delawar*; which, after a

* Doctor *Garden*. See also Mr. *Lewis Evans's* Essays and map. *Philadelphia*, 2d ed. p. 6, &c.

† Mr. *Lewis Evans*, p. 9, and map.

furious course down a long descent, interrupted with rapids, meets the tide not very remote from its discharge into the ocean *.

Much of the low grounds between the base of the *Apalachian* hills and the sea (especially in *Virginia* and *Carolina*) have in early times been occupied by the ocean. In many parts there are numbers of small risings, composed of shells, and in all the plains incredible quantities beneath the surface. Near the *Mississipi* again, in lat. 32. 28, from the depth of fifty to eighty feet, are always found, in digging, sea-sand and sea-shells, exactly similar to what are met with on the shores near *Pensacola* †. This is covered with a stratum of deep clay or marle, and above that with a bed of rich vegetable earth. All this proves the propriety of applying the epithet of new to this quarter of the globe, in a sense different to that intended by the novelty of its discovery. Great part of *North America* at least became but recently habitable: the vast plains of the *Mississipi*, and the tract between the *Apalachian Alps* and the *Atlantic*, were once possessed by the ocean. Either at this period *America* had not received its population from the old world, or its inhabitants must have been confined to the mountains and their vallies, till the waters ceased to cover the tracts now peopled by millions.

LOW GROUNDS.

The composition of the northern mountains agrees much with those of the north of *Asia*, and often consists of a grey rock stone or granite, mixed with glimmer and quartz; the first usually black, the last purplish. Near the river *St. Lawrence*, a great part of the mountains rests on a kind of slaty limestone. Large beds of limestones, of different colors, are seen running from the granitical mountains, and are filled with *Cornua Ammonis*, and different sorts of shells, particularly with a small species of scallop, together with various sorts of corals, branched as well as starry. The strata of limestone also appear near the base of different parts of the *Apalachian* chain ‡. Without doubt, the schistous band, consisting of variety of stone, split and divided by fissures horizontal and perpendicular (in *Asia* the repository of metallic veins) is also found attendant on the granitical mountains of *North America*, and like them will be found rich in ores §: but that country has not yet been surveyed by a philosophical eye. The labor will be amply repayed to the proprietors, by the discovery of mineral sources of wealth, perhaps equal to those already discovered in the similar secondary chains of mountains in the *Russian* empire ||.

COMPONENT PARTS.

Captain COOK continued his voyage to the northward; but, by reason of squally weather and fogs for a few degrees, or from lat. 50 to 55. 20, was deprived

* Mr. Lewis Evans, p. 9, and map.

† J. Lorimer, esq.

‡ Kalm, iii. 21, 198,

216.—Bartram's Travels, 10, 38.

§ In such seem to be lodged the lead and silver ores found in Canada. See Kalm, iii. 212.

|| See Dr. PALLAS's Obs. sur la formation de Montagnes, &c.

DE FUCA'S PAS-
SAGE.

of the opportunity of making the observations he wished. In lat. 48. 15, he in vain looked for the pretended streights of *Juan de Fuca*, who imposed on a *Michael Lock*, an *Englishman* he met with at *Venice*, an account of having found, in 1592, an entrance in this latitude, and sailed through it, till he arrived in the North sea, i. e. *Hudson's Bay* *. Of equal credibility is the pretended passage of Admiral *de Fontes*, in 1640, which is placed in lat. 50. 1; and, according to one map, falls into that of *De Fuca*: according to another, into a vast inland sea, called *Mer de l'Ouest* †. Diligent search was also made after this in the *Spanish* expedition of 1775; which ended in disproving these strange fictions ‡. It had likewise the farther importance of filling up the gap in the charts, by furnishing us with a survey of that tract of coast which Captain *Cook* was obliged to quit.

NOOTKA SOUND.

In lat. 49, Captain *Cook* found a secure shelter in an harbor called by him *King George's Sound*; by the natives, *Nootka*. The shores are rocky §; but within the Sound appears a branch of the range I before mentioned. It is here divided into hills of unequal heights, very steep, with ridged sides, and round blunted tops; in general clothed with woods to the very summits. In the few exceptions, the nakedness discovers their composition, which is rocky, or in parts covered with the adventitious soil of rotten trees or mosses.

The trees were the *Pinus Canadensis*, or *Canada Pine*; the *P. Sylvestris*, or *Scotch Pine*, and two or three other sorts; *Cupressus Thyoides*, or the *White Cedar*. The Pines of this neighborhood are of a great size: some are a hundred and twenty feet high, and fit for masts or ship-building ||; but the dimensions of some of the canoes in *Nootka Sound* best shew their vast bulk—they are made of a single tree, hollowed so as to contain twenty persons; and are seven feet broad, and three deep. They are the same with the *monoxyla* of the antient *Germans* and *Gauls* ¶, but constructed with much more elegance. The old *Europeans* were content if they could but float. They probably were formed on the same rude model as those of the old *Virginians* **, or of the antient *Britons*, similar to one I have seen dug up in a morass in *Scotland*, as artless as a hog-trough ††. Those of *Nootka Sound* are at the head tapered into a long prow, and at the stern they decrease in breadth, but end abrupt.

The day-tides rise here, two or three days after the full and new moon, eight

* North-west Fox, 163.
map; also de L'Isle's map.

§ Voyage, ii. 290. tab. 86, 87.
lib. v. c. 23.—Vel. Patere. lib. ii. c. 107.

† See Jefferies's Obs. on the Letter of Adm. de Fontes, and his
† Maurelle's Voy. in 1775, in Mr. Barrington's Miscellanies, 508.
|| Barrington's Miscell. 290. ¶ Polyæn. Stratagen.
** Brevis et fida Narratio Virginia, in which are
engraven the canoes of the country, taken from the drawing of John With; sent there with Tho. Harriot
for that purpose, by Sir Walter Raleigh, who communicated them to De Bry.—See tab. xii, and xlii.
of the Account of Florida. †† Tour Scoll. ii. p. 106.

feet nine inches. The night-tides, at the same periods, rise two feet higher. Pieces of drift wood, which the navigators had placed during day out of the reach (as they thought) of the tides, were in the night floated higher up, so as to demonstrate the great increase of the nocturnal flux *.

I have described, to the best of my power, the quadrupeds and birds of the *American* part of this voyage. In p. 12 I have given my suspicions of certain animals of the Sheep kind being natives of this neighborhood and *California*; but am not sufficiently warranted to pronounce them to be the same with the *Argali* or wild Sheep. Woollen garments are very common among the people of this Sound, and are manufactured by the women. The materials of many of them seem taken from the Fox and the Lynx; others, I presume, from the exquisite down of the Musk Ox, N° 2. The only peculiar animal of these parts is the Sea Otter, N° 36: it extends southward along the coast, as far as lat. 49, and as high as 60 †. The other quadrupeds observed by the navigators are common to the eastern side of *North America*.

I may mention, that small Perroquets, and Parrots with red bills, feet, and breasts, were seen by M. *Maurelle* about Port *Trinidad*, in lat. 41. 7; and great flocks of Pigeons in the same neighborhood ‡. This was in *June*: possibly they were on their migration when our navigators reached the coasts, which was on *March* 29th. As to the Parrots, it is possible that those birds may not extend so far north as *Nootka*; for on the eastern side of the continent they do not inhabit higher, even in summer, than the province of *Virginia*, in lat. 39; or, in the mid-land parts, than lat. 41. 15, where they haunt in multitudes the southern sides of the lakes *Erie* and *Michigam*, and the banks of the rivers *Illinois* and *Ohio*. Another delicate species of bird was seen here in plenty, a kind of *Honey-sucker* or *Humming-bird*, a new species; which I have described, N° 177, under the title of the *Ruffed*. Among the water-fowl were seen the Great Black Petrel, p. 536. A. or the *Quebrantabueffos*, or *Bone-breaker* of the *Spaniards*, which seems to be found from the *Kuril* isles to *Terra del Fuego*; the *Northern Diver*, N° 439; a great flock of Black Ducks with white heads; a large species of White Ducks with red bills; and Swans flying northward to their breeding-places: common Corvorants were also very frequent.

BIRDS.

The inhabitants of this Sound alter in their appearance from those who live more southern. They are in general below the middle stature; plump, but not muscular: their visage round, full, and with prominent cheeks; above which the face is compressed from temple to temple: the nostrils wide: nose flat, with a rounded point; through the *septum narium* of many is introduced a ring of iron,

MEN.

* *Voyage*, ii. 339.
Miscell. 489, 502.

† In p. 89, for lat. 44, read 49.

‡ See *Barrington's*

brass, or copper: eyes small, black, languishing: mouth round: lips large and thick: hair of the head thick, strong, black, long, and lank; that on the eyebrows very thin: neck short and thick: limbs small and ill-made: skin a pallid white, where it can be viewed free from dirt or paint. The women are nearly of the same form and size as the men, but undistinguishable by any feminine softness. Many of the old men have great beards, and even mustachios; but the younger people in general seem to have plucked out the hair, except a little on the end of the chin.

Their dress consists of mantles and cloaks, well manufactured among themselves, and either woollen, matting, or some material correspondent to hemp. Over their other cloaths the men frequently throw the skin of some wild beast, which serves as a great cloak. The head is covered with a cap made of matting, in form of a truncated cone, or in that of a flower-vase, with the top adorned with a pointed or round knob, or with a bunch of leathern tassels. Their whole bodies are incrustated with paint or dirt, and they are a most squalid offensive race; silent, phlegmatic, and uncommonly lazy; easily provoked to violent anger, and as soon appeased. The men are totally destitute of shame: the women behave with the utmost modesty, and even bashfulness*. I shall not repeat what has been said of the infinite variety of hideous masques this nation possesses, and seems particularly fond of, was not the ingenious Editor of the Voyage at a loss for their intent, whether for religious or for masquerading purposes†. Mr. Bartram‡ proves that these masques extend to the eastern side of the continent, and that their use was sportive; for he was plagued part of a night with the buffoonery of a fellow, who came into his lodgings while he was on his travels, and, after playing a thousand antic tricks, vanished in a manner as if he meant to be taken for a hobgoblin. The *Ostiahs* have exactly the same custom§.

These people have made some progress in the imitative arts; for, besides their skill in the sculpture of their masques, which they cut into the shape of the heads of various species of beasts and birds, they are capable of painting with tolerable exactness: accordingly, they often represent on their caps the whole progress of the Whale-fishery. I have seen a small bow made of bone, which was brought by the navigators from this side of *North America*, on which was engraven, very intelligibly, every object of the chase. I have caused this singular bow to be engraven, and in the same plate, that most terrific *Tomahawk* of *Nootka Sound*, called the *Taaweesh*, or *Tfuskeeah*. The offensive part is a stone projecting out of the mouth of a sculpture in wood, resembling a human face, in which are stuck human and other teeth: long locks of scalped hair are placed on several parts of the head,

* *Voyage*, ii. 339.

† Same, 307.

‡ *Travels*, 43.§ *Russian Nations*, i. 193.

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Tomahawk & Bow.



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waying when brandished in a most dreadful manner. I could distinguish the Elk, the Rein, the *Virginian* Deer, and the Dog; birds, probably of the Goose kind; the Whale-fishery, the Walrus, and the Seal.—With what facility might be reclaimed and civilized a people so strongly possessed with a disposition towards the liberal arts!

From lat. 55. 20, towards the north, the country increases in height, especially inland, where a range of very lofty mountains, mostly covered with snow, is seen nearly parallel with the coast, a branch of those I have before mentioned. Above lat. 56 the coast is broken into bays and harbours. In this neighborhood Captain *Tschirikow*, consort to the great navigator *BERING*, who was separated from his commander by a storm, was so unfortunate as to touch on an open part of the coast, in about lat. 55, in which he anchored in a most dangerous situation, full of rocks. Having lost his shallop, and after that his small boat, with part of his crew, which he had sent on shore to water, and which were destroyed by the natives, he was obliged to return from his ineffectual voyage *. A vast conic mountain, called by Captain *Cook* *Mount Edgumbe* †, rises pre-eminent above all the others. This is in lat. 57. 3, long. 224. 7. Not remote from hence is the *Bay of Islands*, the same as the *Port los Remedios*, nearly the *ne plus* of the *Spanish* expedition of 1775. The adventurers comforted themselves with having reached lat. 58, and having attained the highest latitude ever arrived at in these seas ‡. This coast, as well as the rest, continued covered with woods.

RUSSIAN VOYAGE.

MOUNT
EDGE CUMBE.

A high peaked mountain, *Mount Fair-weather*, and the inlet *Cross Sound*, next appear. The first is the highest of a chain of snowy mountains, which lie inland about five leagues, in lat. 58. 52. The land between them and the sea was very low, for the trees seemed to arise out of the water. Several sea-birds, with a black ring round the head; the tip of the tail, and upper part of the wings, marked with black; the body bluish above, white beneath, came in view; and on the water sat a brownish Duck, with a deep blue or black head §.

In lat. 59. 18, is a bay, with a wooded isle off its south point, named by Captain *Cook*, *BERING's*; in honor of the illustrious *Dane* who first discovered this part of *America*, and, as was conjectured, anchored there for a small space. The appearance of the country was terrific; it consisted of lofty mountains (in *July*) covered with snow: but the chain is interrupted near this port by a plain of a few miles in extent; beyond which the view was unlimited, having behind it a continuance of level country, or some great lake. He had not leisure to make observations; he only named a cape, which advanced into the sea, *Cape Elias* ||: this is not at present known; but the name of *Mount Elias* was bestowed by Captain

* *Voy. & Decouvertes de Russes*, i. 256.
Mijel. 507. § *Cook's Voy.* ii. 347.

† *Cook's Voy.* ii. 344, tab. 86.

‡ *Barrington's*

|| *Voy. & Decouvertes*, i. 254.—*COOK*, ii. 347, 383.

COOK.

COOK on a very conspicuous mountain *, which lay inland to the north-west of the bay, in lat. 60. 15.

BERING, during the short stay he made on the coast, sent his boat on shore to procure water. That great naturalist, *Steller*, companion of the voyage, took the opportunity of landing. The whole time allotted him was only six hours; during which he collected a few plants, and shot that beautiful species of Jay, N° 139, to which I have given his name. He returned on board with the regret a man of his zeal must feel at the necessity of so slight an examination in so ample a field. What he could have done, had circumstances permitted, is evident from the excellent collection he formed of natural history respecting *Kamtschatka*, and some of its islands †.

PLANTS.

Among the plants found by him on the *American* continent were, *Plantago major*, Sp. Pl. i. 163; Great Plantane, *Fl. Scot.* i. 117. *K. Virg.*: *Plantago Asiatica*, Sp. Pl. i. 163. *K.*: *Polemonium Cæruleum*, Sp. Pl. i. 230: Greek Valerian, *Hudson*, i. 89. *K.*: *Lonicera Xylosteum*, *Fl. Sib.* iii. 129. *K.*: *Ribes Alpinum*, Sp. Pl. i. 291. *Fl. Scot.* i. 146. *K.*: *Ribes grossularia*, Sp. Pl. i. 291; Gooseberries, *K. Virg.*: *Claytonia Virginica*? Sp. Pl. i. 294. *K. Virg.*: *Heuchera Americana*? Sp. Pl. i. 328. *K.*: *Heracleum Panaces*, Sp. Pl. i. 358; or Cow Parsnep, *K.* which he found in one of the habitations of the natives, tied up in bundles ‡ ready for use. (I have mentioned, at p. cxvii. the application of it in *Kamtschatka*, for the purposes of distilling an intoxicating liquor; but the *Americans* are fortunate enough to be ignorant of that art, and only use it as a food.) *Vaccinium Myrtillus*, Sp. Pl. i. 498; Bilberries, *Fl. Scot.* i. 200. *K.*: *Vaccinium Vitis Idæa*, *Virg.* Sp. Pl. i. 500; Red Whortle-berries, *Fl. Scot.* i. 202. *K.*: *Erica*, *Fl. Sib.* 131, N° 22. *K.*: *Adoxa Moschatellina*, Sp. Pl. i. 527; tuberous Moschatel, *Fl. Scot.* i. 209. *K.*: *Rubus Idæus*, Sp. Pl. i. 706; Raspberry-bush, *Fl. Scot.* i. 263. *K.*: *Fragaria Vesca*, Sp. Pl. i. 708; Wood Strawberry, *Fl. Scot.* i. 267. *Virg. K.*: the *Leontodon Taraxicum*, *Virg. B.* Sp. Pl. ii. 1122; or common Dandelion, *Fl. Scot.* i. 433: *Abies*, Sp. Pl. ii. 1188; or common Wormwood, *Fl. Scot.* i. 467: *Artemisia Vulgaris*, Sp. Pl. ii. 1188; or Mugwort, *Fl. Scot.* i. 468: *Gnaphalium Dioicum*, Sp. Pl. ii. 1199; Mountain Cudweed, or Cat's-foot, *Fl. Scot.* i. 470. *K.*: *Aster* seu potius *Helenium fruticosum*, *Fl. Sib.* ii. 175, *B. K.* with beautiful yellow flowers: *Erigeron acre*, Sp. Pl. ii. 1211; Blue Fleabane, *Fl. Scot.* i. 474. *K.*: *Chrysanthemum Leucanthemum*, ii. 1251; Great Daisy, or Ox-eye, *Fl. Scot.* i. 488. *B. K. Virg.*: *Pyrethrum*, *Fl. Sib.* ii. 203, N° 170. *B. K.*: *Achillea Millefolium*,

* Cook, ii. tab. 86.

† Voy. & Decouvertes, i. 257.

‡ Decouvertes faites

par les Russes, i. 256.—Voyage, ii. tab. 86.

Sp. Pl. ii. 1267; Milfoil or Yarrow, *Fl. Scot.* i. 490. *K. Virg.*: *Empetrum nigrum*, Sp. Pl. ii. 1450; Black-berried Heath, Crow-berries, *Fl. Scot.* ii. 612. *K. Virg.*: *Menispermum Canadense*? Sp. Pl. ii. 1468. *K. Virg.*—I retain the mark of *British* vegetables, to shew the vast dilatation of plants; and that of *Virg.* to shew those which spread to the eastern side of *America*.

To these may be added a few trees and plants observed by our navigators; such as the *Pinus Strobus*, Sp. Pl. ii. 1490, the white or *Weymouth* Pine, which grows to an enormous size; *Pinus Canadensis*, Sp. Pl. ii. 1421, the *Canada* Pine; three or four other Pines, which we cannot determine; the *Cupressus Disticha*? Sp. Pl. ii. 1422, the deciduous Cypress; *Cupressus Thyoides*, Sp. Pl. ii. 1422, or white Cedar; some Birch, Alders, and Willows; wild Rose-bushes; and several plants, the species of which are unknown to us. Probably that useful Lily, the *Lilium Kamtschatkense*, or *Saranne*, extends to the continent, for it is found in abundance in the adjacent island *Oonalschka*, where it serves as a food, as it does in *Kamtschatka* *.

In this neighborhood, in lat. 59. 49, about *Kaye's* island †, off *Cape Suckling*, Captain *COOK* observed variety of birds; among them some Albatrosses, the snowy Gulls, and the common Corvorant: and in the poor woods which encircled the island like a girdle, were seen a Crow, the white-headed Eagle, and another species equally large, of a blacker color, with a white breast, which proves to be the kind described by Mr. *Latham*, i. p. 33. N° 72, under the name of the *white-bellied Eagle* ‡.

KAYE'S ISLAND.

After doubling a cape, called by our great navigator, *Hinchinbroke* §, he anchored in a vast sound, named by him *Prince William's*, in lat. 61. 30, secured by a long island, called *Mountague's*, stretching obliquely across from north-east to south-west. The land round this harbour rose to a vast height, and was deeply covered with snow ||. Vegetation in these parts seemed to lessen. The principal trees were the *Canadian* and *Spruce* Firs, and some of them moderately large.

PRINCE WILLIAM'S
SOUND.

Besides the quadrupeds found at *Nootka*, there is a variety of Bear of a white color; I will not call it the *Polar*, as that animal inhabits only the severest climates, where it can find dens of snow and isles of ice. An animal of the ermine kind, varied with brown, but the tail scarcely tipped with black. Wolves were here, of a very brilliant color; and the earless Marmot, N° 47, was very common. None of these were seen living, but their skins were brought

QUADRUPEDS.

* *Voyage*, ii. 501.

† Same, tab. 85.

‡ Same, p. 352.

§ Same, tab. 86.

|| See the picturesque view of *Suecg Corner Cove*, tab. 45.

in abundance as articles of commerce. The skin of the head of the male Leonine Seal was also offered to sale: in the Voyage it is called the *Ursine*; but from the great shagginess of the hair I presume I am not wrong in my conjecture. This is the only place in the northern hemisphere in which it was found by the navigators*.

BIRDS.

Among the birds were the black Sea Pies with red bills, observed before in *Van Diemen's Land* and *New Zealand*. A Duck, equal in size to our Mallard, with a white bill tinged with red near the point, and marked with a black spot on each side near the base: on the forehead a large white triangular spot, and a larger on the hind part of the neck: the rest of the plumage dusky: the tail short and pointed: the legs red. The female was of duller colors, and the bill was far less gay. Another species resembled the small one found at *Kerguelen's Land*. A Diver (Grebe?) of the size of a Partridge; with a black compressed bill: head and neck black: upper part of the body deep brown, obscurely waved with black; the lower part dusky, speckled minutely with white. Honey-suckers, probably migratory in this high latitude, frequently flew round the ships†.

To give all the additions I am able to my zoologic part, I shall here mention certain species of Petrels, observed on the western coast of *North America*: such as numberless brown Petrels near the entrance of Cook's river, flying round a remarkable sugar-loaf hill‡. A species seen near *Nootka Sound*, about eleven inches long, with the nostrils scarcely tubular: bill and plumage above dusky, beneath white: legs black. This is common to *Turtle Isle*, lat. 19. 48, south, long. 178. 2, west; and *Christmas Isle*, lat. 1. 59, north, long. 202. 30, east. Another, about thirteen inches long, with the forehead, space between the eyes and bill, the chin, and throat, of a greyish white, varied with specks of dusky: crown and upper part of the body dusky: under parts hoary lead-color: legs pallid§. I may add a fourth, seen off the coast of *Kamtchatka*, which Mr. Ellis mentions as being small, and of a bluish color||.

MEN.

MANKIND here shew a variation from the last described. The natives are generally above the common stature, but many below it: square-built or strong-chested: their heads most disproportionably large; their faces flat, and very broad: their necks short and thick: their eyes small, in comparison to the vast breadth of their faces: their noses had full round points, turned up at the end: their hair long, thick, black, and strong: their beards either very thin, or extirpated; for several of the old men had large, thick, but strait beards: their countenances generally full of vivacity, good-nature, and frankness, not unlike the *Cristinaux*,

* Voy. ii. 377. † Same, 378. ‡ Ellis's Narrative, i. 251. § This, and the preceding, in the LEVERIAN Museum. || Narrative, ii. 246.

§ This, and a people

a people who live far inland, between the little and the great lakes *Ouinipique*. On the contrary, the inhabitants of *Nootka* in their dulness resemble the *Astinibouels*, who live on the western side *: and these two nations may have been derived from a common stock with the maritime tribes whom we have had occasion to mention. The skins of the natives of this sound were swarthy, possibly from going often naked; for the skins of many of the women, and the children, were white, but pallid. Many of the women were distinguishable from the men by the delicacy of their features, which was far from the case with those of *Nootka*.

In these parts, within the distance of ten degrees, is a change of both dress and manners. The cloak and mantle are here changed for a close habit, made of the skins of different beasts, usually with the hair outwards; or of the skins of birds, with only the down remaining; some with a cape, others with a hood: over which, in rainy weather, is worn a garment like a carter's frock, with large sleeves, and tight round the neck, made of the intestines probably of the whale, and as fine as gold-beater's leaf. On the hands are always worn mittens, made of the paws of a bear; and the legs are covered with hose, reaching to midway the thigh. The head is generally bare; but those who wear any thing, use the high truncated conic bonnet, like the people of *Nootka* †. In this place only was observed the *Calumet*; a stick about three feet long, with large feathers, or the wings of birds, tied to it. This was held up as a sign of peace.

I leave the reader to amuse himself in the Voyage, by the account of the strange custom of the natives in cutting through their under lip, and giving themselves the monstrous appearance of two mouths ‡: in the orifice they place a bit of bone or shell by way of ornament. This custom extends to the distant *Mosquitos*, and even to the *Brazilians* §, but seems unknown in other parts of *America*.—I endeavour to confine myself to passages which may lead to trace the origin of the people. These paint their faces, and puncture or tallow their chins. They are most remarkably clean in their food, and in their manner of eating it, and even in the keeping of their bowls and vessels. In their persons they are equally neat and decent, and free from grease or dirt ||: in this they seem an exception to all other savages.

They have two kinds of boats; one large, open, and capable of containing above twenty people. It is made of the skins of marine animals, distended on ribs of wood, like the *vitilia navigia* of the *Britons*, at the time in which they were on a level with these poor *Americans*; or like the woman's boat of the *Greenlanders* and *Eskimaux*. The canoes are exactly of the same construction with those of the latter; and the difference of both is very trivial. The canoes of these

BOATS.

* *Dobbs*, 24. † *Voyage*, ii. 368, 369. ‡ Same, 369, tab. 46, 47. § *Dampier*, i. 32, de *Bry. Brasil*, 165. || *Voyage*, ii. 374.

Americans are broader than those of the eastern side of the continent; and some have two circular apertures, in order to admit two men*. Every weapon which these people have for the chase of quadrupeds or fish, is the same with those used by the *Greenlanders*: there is not one wanting.

CAPE BEDE.

MOUNT ST. AUGUSTINE.

COOK'S RIVER.

From *Prince William's* sound the land trends north-west, and terminates in two headlands, called *Cape Elizabeth* and *Cape Bede*; these, with *Cape Banks* on the opposite shore, form the entrance into the vast estuary of *Cook's* river; in the midst of which are the naked isles, distinguished by the name of the *Barren*. Within, to the west, is a lofty two-headed mountain, called *Cape Douglas*; which is part of a chain of a vast height, in which was a vulcano, at the time this place was visited, emitting white smoke: and in the bottom of a bay, opposite to it, is an island, formed of a lofty mountain, on which was bestowed the name of *Mount St. Augustine*†. The estuary is here of a great breadth, owing to a bay running opposite to *Mount Augustine* deeply to the east.

The estuary of *Cook's* river is of great length and extent. The river begins between *Anchor Point* and the opposite shore, where it is thirty miles wide: the depth very considerable, and the ebb very rapid. Far within, the channel contracts to four leagues, through which rushes a prodigious tide, agitated like breakers against rocks. The rise of the tide in this confined part was twenty-one feet. It was examined seventy leagues from the entrance, as far as lat. 61. 30, long. 210, and its boundaries were found to be flat, swampy, and poorly wooded, till they reached the foot of the great mountains. Towards the north, it divides into two great branches, or perhaps distinct rivers. That to the east is distinguished by the name of *Turn-again* river. The first is a league wide, and navigable, as far as was tried, for the largest ships, and continued very brackish; there is therefore the greatest probability of its having a very long course, and being, in after times, of considerable use in inland navigation: that it is of some even at present is very certain; for here, as well as in *Prince William's* sound, the *Indians* were possessed of glass beads and great knives of *English* manufacture, which the *Hudson's* bay company annually send in great quantities, and exchange for furs with the natives, who travel to our settlements very far from the west. The company also send copper and brass vessels; but neither copper or iron in bars. There does not seem to be any direct dealings with the *Indians* of this coast: the traffic is carried on by intermediate tribes, who never think of bringing furs to a people so amply supplied as the *Indians* are who deal with our factories. Nations who use the most precious furs merely as a defence from the cold, make no distinction of kinds: if they could get more beads or more knives for the skins of *Sea Otters*

* *Voyage*, ii. 371.

† See the chart, ii. tab. 44.

than any other, they would instantly become articles of commerce, and find their way across the continent to the *European* settlements.

From *Turn-again* river to the nearest part of *Hudson's* bay, is fifty-five degrees, or about sixteen hundred miles; but from the most western part of *Arapathescow* lake (which is intermediate) is only twenty-six degrees, or about seven hundred and fifty miles. There is no discharge out of that vast water but what runs into *Hudson's* bay. We have some obscure accounts of rivers * which take a western course from the countries east of this coast: some of which may be those which have been seen by our navigators, and which, by means of lakes or other rivers falling into them, may prove a channel of intercourse between these *Indians* and the *Hudson's* bay company, as soon as our friendly *Indians* become acquainted with the value of these maritime furs.

The inhabitants of *Cook's* river differed very little from those of *Prince William's* sound. They had Dogs, which were the first seen on the coasts; Sea Otters, Martins, and white Hares: and they were plentifully supplied with Salmon and Holibut.

After leaving the entrance into the river, appears Cape St. *Hermogenes*, discovered first by *BERING*. It proved a naked lofty island, about six leagues in circuit, and divided from the coast by a channel a league broad. This lies in lat. 58. 15, off the vast peninsula *Alaschka*, which begins between the estuary of *Cook's* river and *Bristol* bay, which bound its isthmus. It points south-west, and continues the crescent formed by the islands which cross the sea from *Kamtschatka*. *Alaschka* is the only name given by the natives to the continent of *America*. The land to the west of *Cook's* river rises into mountains, with conoid tops thickly set together. The coast is frequently bold, and the rocks break into pinnacles of picturesque forms: the whole is fronted by groups of isles and clusters of small rocks. In a word, the country and shores are the most rugged and disjointed imaginable, and bear evident marks of having undergone some extraordinary change.

Among the isles, those of *Schoumagin* are the most important, which received their name from having been the place of interment of one of *Bering's* crew, the first which he lost in these seas. The principal lies the farthest to the west, and is called *Kadjak*: it is about a hundred versts long, and from twenty to thirty broad; and, from the account of *Demetrius Bragin*, who visited it from *Oonalaschka* in 1776, is very populous. The inhabitants spoke a language different from those

Dogs.

CAPE ST. HERMOGENES.

ALASCHKA, CONTINENT OF AMERICA.

KADJAK.

* Particularly from one *Joseph de la France*, who in 1739 made a very long journey to the west, and was a very observant man. See *Dobbs, Hudson's Bay*, 21, 34, 35.

of that island: it seemed a dialect of the *Greenlanders*. They called their wooden shields *Kuyaky*, probably because they resemble a *kaiak*, or a little canoe, a *Greenland* word for that species of boat; and themselves *Kanagist*, as the others style themselves *Karalit*. They have likewise the woman's boat, like the people of *Prince William's* sound: in fact, they seem to be the same people, but more refined. They were armed with pikes, bows and arrows, and wooden shields. Their shirts were made of the skins of birds; also of the earless Marmot (*Arct. Zool. i. N° 47*), Foxes, and Sea Bears, and some of fishes skins. Dogs, Bears, common Otters, and Ermines, were observed here. Their dwellings were made with timber, and were from fifteen to twenty fathoms long, covered with a thatch and dried grass. Within they were divided into compartments for every family, and every compartment lined neatly with mats. The entrance was on the top, covered with frames, on which were stretched the membranes of dried intestines instead of glass*. These people seemed to have made far greater progress in the arts than their neighbors. They worked their carpets in a very curious manner; on one side close set with beaver wool. The Sea Otters skins which they brought for sale were in some parts shorn quite close with sharp stones, so that they glistened and appeared like velvet. They shewed strong proofs of genius in their invention to preserve themselves from the effects of the *Russian* fire-arms. They had the spirit to make an attack, and formed skreens with three parallel perpendicular rows of stakes, bound with sea-weeds and osiers; their length was twelve feet, and thickness three: under the shelter of these they marched; but their success was not correspondent to their plan†: a sally of the *Russians* disconcerted them, and put them to the rout.

The island consists of hills mixed with lowlands. It abounds with bulbs, roots, and berries, for food; with shrubs, and even trees sufficiently large to be hollowed into canoes capable of carrying five persons‡. In this kind of boat they differ from those of the *Greenlanders*.

HOLIBUT ISLE.

Off the extremity of the peninsula of *Alaschka* is *Holibut* island, in lat. 54, rising into a lofty pyramidal mountain, lying opposite to the narrow shallow strait which lies between the isle *Oonemaka* and *Alaschka*. The chain on the continent is seen to rise into stupendous heights, covered with snow: among them several of the hills appear to rise insulated, and of a conic form. One

* From a MS. communicated to me by Dr. PALLAS, *Bragin* was commander of a vessel which was fitted out by the merchants on a voyage to the new-discovered islands, and sailed from *Ochotsk* in 1772. About ten years prior to this, another voyage was made to *Kadjak* by *Stephen Glottoff*.— See *Coxe's Disc.* 108. † *Coxe's Russ. Disc.* 12. ‡ MS.

OONEMAK AND OONALASHKA.

CLIII

was a *vulcano*, flinging up volumes of black smoke to a great height *, then streaming before the wind with a tail of vast length and picturesque appearance. It often took a direction contrary to the point the wind blew from at sea, notwithstanding there was a fresh gale. It lies in lat. 54. 48 north, long. 195. 45 W. and is evidently a link in the vulcanic chain, which extends, in the southern hemisphere, as low at least as that of St. Clement in *Chili*, in lat. 45. 30.

The extremity of *Alaschka* ends abrupt, and has opposite to it an island called *Oonemak* or *Unmak*, of nearly a correspondent breadth, separated from it by a very narrow and shallow channel, situated in lat. 54. 30, and leading into *Bristol* bay, pervious only by boats or very small vessels. The isle is a hundred versts long, and from seven to fifteen broad; and has in the middle a *vulcano*. In the low parts several hot springs burst forth, to which the islanders carry the fish or flesh they want to boil; and they are also fond of bathing in the temperate parts †.

OONEMAK.

To the west are the small isles of *Oonella* and *Acootan*: at a small distance from them is *Oonalashka* or *Aghoun-alaiska* ‡, a name evidently referring to the continent. My MS. calls its length a hundred and twenty versts, its breadth from ten to eighteen. It is the most remote of the *Russian* colonies, who have now made settlements on most of the isles between *Asia* and *America*, all under the care of private adventurers. The voyage from *Ochotsk* or *Kamtschatka* lasts three or four years; and is solely undertaken for the sake of the skins of Sea Otters. Possibly other reasons will, in a little time, induce them to attempt the colonization of the continent. Timber may be one; for their northern *Asiatic* dominions and their islands yield none. I foresee docks and timber-yards in all convenient places. At present, the natives of these isles have only the skin-covered canoes §, and even for the ribs they are obliged to the chance of drift-wood. In these, in dress, and in weapons, they resemble the *Eskimaux*. The language is a dialect of the *Eskimaux*. They are rather of low stature. They have short necks, swarthy chubby faces, black eyes, and straight long black hair. The fashion of wearing feathers or bits of sticks in their noses is used in *Oonalashka*. Both sexes cut their hair even over their foreheads: the men wear theirs loose behind; the females tie theirs in a bunch on the top of their head: the first wear long loose frocks, of the skins of birds; the last of the skins of Seals. The men fling over their frocks another, of the guts of the cetaceous animals, dried and oiled, to keep out the water ||; and, to

OONALASHKA.

NATIVES.

* See the plate, No 87, vol. ii. for the several views.
PALLAS, MS.

§ See their boats, tab. 50.

† *Bragin's Voy.* MS.

|| See their dresses, tab. 48, 49, 56, 57.

‡ Doctor

defend.

defend their faces from the weather, they wear a piece of wood, like the front of the bonnet of an *English* lady *. Some use the bonnet in the form of the truncated cone. The women slightly tallow their faces, and often wear a string of beads pendent from their noses; both sexes perforate their under lip, but it is very uncommon to see any except the females stick in it the ornamental bone. The nose-ornaments extend far inland on the continent; for the *Americans*, who trade with the *Hudson's* bay company, use them: but from the figures given by *De Brie*, they do not seem ever to have reached the people of *Virginia* and *Florida*. They inhabit jouts, or subterraneous dwellings, each common to many families, in which they live in horrible filthiness: but they are remarkably civilized in their behaviour; and have been taught by the *Russians* to pull off their caps, and to bow, in their salutations.

BARROWS:

They bury their dead on the summits of hills, and raise over the spot a barrow of stones †, in the manner customary in all the north of *Europe* in very early days.

BRISTOL BAY AND RIVER.

On the north side of the promontory *Alaschka*, the water decreases considerably in depth, and the mountains recede towards the bottom far inland, and leave a large tract of low land between them and the sea. Here it forms a great bay, called *Bristol*; with a vast river at the end, with an entrance a mile broad, seated in lat. 58. 27. Cape *Newenham*, lat. 58. 42, a rocky promontory, is the northern horn of the bay, eighty-two leagues from Cape *Oonemak*, its southern: an universal barrenness, and want of vegetation, appeared in the neighborhood of the former. The *Walrus*es (N° 71) began, the 15th of *July*, to shew themselves in great numbers about this place: a proof that ice is not essential to their existence. The inhabitants of this coast were dressed much more squalidly than those before seen; but, like the others, deformed their noses and lips. They shaved their head or cut the hair close, and only left a few locks behind or on one side, somewhat in the *Chinese* fashion. From Cape *Newenham*, the continent runs due north.

GORE'S ISLE.

To the west is *Gore's* island, distinguished by a vast cliff, in lat. 60. 17, long. 187. 30, called *Point Upright*; and near it a most rugged, high, rocky islet, named the *Pinnacles* ‡. Myriads of the *Auk* tribe haunted these precipices. This seems the

SEA OTTERS:

extreme northern resort of the *Sea Otter*.

From *Shoal-nefs*, in lat. 60, long. 196, there is a gap in the *American* geography, as far as *Point Shallow Water*, lat. 62. 50; and not far from thence were the symptoms of the discharge of some great river, from the uninvestigated part. Be-

* *Voyage*, ii. 510.

† Same, 521.

‡ See tab. 87.

CAPE STEPHENS. CAPE DARBY.

CLV

yond *Point Shallow*, in lat. 63. 33, is *Cape Stephens*; and before it, at a small distance, *Stuart's isle*. These make the southern points of *Norton's Sound*, formed by a vast recess of the land to the east. All the land near the sea is low and barren, bounded inland by mountains. The trees, which were Birch, Alder, Willow, and Spruce, very small; none of the last above six or eight inches in diameter: but the drift-wood, which lay in plenty on the shore, much larger; having been brought down the rivers from land more favorable to its growth. Towards the bottom of the sound, *Cape Denbigh* juts far to the west into the water, and forms a peninsula. It has been an island; for there are evident marks on the isthmus, that the sea had once possessed its place: a proof of the loss of the element of water in these parts, as well as in other remote parts of the globe.

CAPE STEPHENS.

The sound, from *Cape Denbigh*, is suddenly contracted, and is converted into a deep inlet, seemingly the reception of a large river. The continent, in these parts, consists of vast plains, divided by moderate hills; the former watered by several rivers meandering through them. Vegetation improves in proportion to the distance from the sea, and the trees increase in bulk. A promontory, called *Bald Head*, bounds the northern entrance into this inlet. Farther to the west *Cape Darby*, in lat. 64. 21, makes the northern horn of this great sound.

CAPE DARBY.

Numbers of people inhabit this coast. The men were about five feet two inches high; and in form and features resembled all the natives seen by the navigators since they left *Nootka Sound*. They had, in their under lip, two perforations. The color of their skin was that of copper: their hair short and black: the beard of the men small: their language a dialect of the *Eskimaux*. Their clothing is chiefly of Deer skins, with large hoods, made in the form of loose jackets, scarcely reaching lower than half the thigh; where it was almost met by a great wide-topped boot. The *Eskimaux* occasionally stick their children in the top: the women of this country place them more commodiously within the upper part of the jacket, over one shoulder*. In language there seems considerable conformity. They had, like them, the woman's boat, and the *Kaiack*: the first they sometimes made use of as a protection from the weather, by turning it upside down, and sheltering beneath. But their hovels were the most wretched of any yet seen; consisting of only a sloping roof (without any side walls) composed of logs; a floor of the same; the entrance at one end, and a hole to permit the escape of the smoke. These poor people seem very susceptible of feelings for the misfortunes of each other, which would do honor to the most polished state. A family appeared, one of which was a most distorted figure, with scarcely the human form:

NATIVES.

THEIR SENSIBILITY.

* See tab. 54.

another,

another, seemingly the chief, almost blind: the third, a girl: the last, the wife. She made use of Captain KING to act as a charm to restore her blind husband to his sight*. He was first directed to hold his breath; then to breathe on, and afterwards to spit on his eyes. We are not without similar superstitions. The Romans† applied the same remedy to diseases of the same part: but I doubt whether they, or our polished nation, ever expressed the same feelings as this poor woman did. She related her story in the most pathetic manner; she pressed the hands of the Captain to the breast of her husband, while she was relating the calamitous history of her family; pointed sometimes to the husband, sometimes to the cripple, and sometimes to the poor child. Unable to contain any longer, she burst into tears and lamentation. She was followed by the rest of her kindred in an unison, which, I trust, filled the eyes of the civilized beholders, as their relation has mine.

From Cape Darby the land trends to the west, and ends in Point Rodney; low land, with high land far beyond, taking a northerly direction inland. Off this point, in lat. 64. 30, is Sledge island, so called from a sledge being found on it, resembling those which the Russians use in Kamtschatka to carry goods over the snow. It was ten feet long, twenty inches broad, with a rail on each side, and shod with bone; all neatly put together, in some parts with wooden pins, but mostly with thongs of whalebone: a proof of the ingenuity of the natives. Whether it was to be drawn with dogs or rein-deer, does not appear; for the island was deserted, and only the remains of a few jouts to be seen. In lat. 64. 55, long. 192, is KING's island, named in honor of the able and worthy continuator of the voyage. The continent opposite to it bends towards the east, and forms a shallow bay; then suddenly runs far into the sea, and makes the most western extremity yet known, and probably the most western of all. On it were several huts; and stages of bone, such as had been observed in the Tschutski country. This cape forms one side of BERING's streights, and lies nearly opposite to East Cape, on the Asiatic shore, at the small distance of only thirty-nine miles. This lies in lat. 65. 46; is named Cape Prince of Wales; is low land, and the heights, as usual, appeared beyond; among which is a remarkable peaked hill. It would be unjust to the memory of past navigators, not to say, that there is the greatest probability that either this cape, or part of the continent adjacent to it, was discovered, in 1730, by Michael Gwosdew, a land surveyor attendant on the *Cossack*.

* See *Voyage*, ii. 481.

† Mulieris salivam quoque jejunæ potentem dijudicant oculi serpentatis.—*Plin. Hist. Nat. lib. xxviii. c. 7.*

MULGRAVE POINT, ICY SEA.

CLVII

Colonel Schestakow, in the unfortunate expedition undertaken by him to render the *Tschutski* tributary *.

Here begins the *Icy Sea* or *Frozen Ocean*. The country trends strongly to the east, and forms, in lat. 67. 45, long. 194. 51, *Point Mulgrave*; the land low, backed inland with moderate hills, but all barren, and destitute of trees. From hence it makes a slight trend to the west. *Cape Lisburn* lies in lat. 69; and *Icy Cape*, the most extreme land seen by any navigators on this side, was observed in lat. 70. 29, long. 198. 20, by our illustrious seaman, on *August* 18th 1778. The preceding day he had made an advance as high as 70. 41; but, baffled by impenetrable ice, upon the justest reasoning was obliged to give up all thoughts of the north-east passage: which reasons were confirmed, in the following year, by his successor in command, Captain CLERKE. All the trials made by that persevering commander could not attain a higher latitude than 70. 11, long. 196. 15. He found himself laboring under a lingering disease, which he knew must be fatal, unless he could gain a more favorable climate; but his high sense of honor, and of his duty to his orders, determined him to persist, till the impossibility of success was determined by every officer. He gave way to their opinion, sailed towards the southward on *July* 21st, and on *August* 22d honorably sunk, at the age of thirty-eight, under a disorder contracted by a continued scene of hardships, endured from his earliest youth in the services of his country †.

POINT MUL-
GRAVE.

OF THE ICY SEA.

To such characters as these we are indebted for the little we know, and probably all that can be known, of the *ICY SEA*. The antients had some obscure notion of its coasts, and have given it the name of *Scythicum Mare*; a cape jutting into it was styled *Scythicum Promontorium*; and an island at the bottom of a deep bay to the west of it, *Scythica Insula*. It is following the conjectures of the ingenious to say, that the first may be the *Cape Jalmal*, and the last, *Nova Zemlja*, which some will make the *Insula Tazata* of *Pliny*, as it resembles in name the river *Tas*, which flows almost opposite to it into the gulph of *Ob* ‡. The knowledge which the antients had of these parts must have been from traffic. The old *Ladoga* was, in very early times, a place of great commerce, by assistance of rivers and seas, even from the farthest parts of the *Mediterranean*; the coins of *Syria*, *Arabia*, *Greece*, and *Rome*, having been found in the burial-places adjoining to that antient city §. Another channel of knowledge was formed from the great traffic carried on by the merchants, from even the remote *India*, up the *Volga* and the *Kama*, and from thence to *Tscherdyn*, an emporium on the river *Kolva*,

* *Decouvertes*, &c. i. 166.

† See the particulars of his services, *Voyage*, iii. 280.

‡ *Strahlenberg Hist. Russia*, 113.

§ Same, 110.

x.

seated

seated in the antient *Permia* or *Biormia*, and not far south of the river *Peczora*. From thence the *Biormas*, who seem to have been the factors, embarked with the merchandize on that river, went down with it to the coasts of the *Frozen Sea*; and, after obtaining furs in exchange, they returned and delivered them, at *Tscherdyn*, to the foreign merchants*: and from them the antients might pick up accounts.

DEPTH.

The *ICY SEA* extends from *Nova Zemlja* to the coast of *America*. We have seen how unable even the *Russians* have been to survey its coasts, except by interrupted detail, notwithstanding it formed part of their own vast empire. To our navigators was given the honor not only of settling parts of its geography with precision, but of exploring the whole space between the most northern promontory of *Asia* and the farthest accessible part of *America*. This was a tract of one hundred leagues†. The traversing it was a work of infinite difficulty and danger. The sea shallow; and the change from the greatest depth, which did not exceed thirty fathoms, to the least, which was only eight, was sudden: the bottom muddy, caused by the quantity of earth brought down from the vast rivers which pour into it from the *Asiatic* side. We suspect that it receives but few from the *American*, their general tendency being east and west. The *Icy Sea* is shallow, not only because its tides and currents are very inconsiderable; but its outlet through the straits of *Bering* very narrow, and even obstructed in the middle by the islands of *St. Diomedes*: both which circumstances impede the carrying away of the mud. The current, small as it is, comes chiefly from the south-west, and is another impediment. The land of each continent is very low near the shores, and high at a small distance from them: the former is one instance of a correspondent shallowness of water. The soundings off each continent, at the same distances from the shore, were exactly the same.

ICE.

The ice of this sea differs greatly from that of *Spitzbergen*. It probably is entirely generated from the sea-water. The *Icy Sea* seems to be in no part bounded by lofty land, in the valleys of which might have been formed the stupendous *icebergs*, which, tumbling down, form those lofty islands we had before occasion to mention. The ice here is moveable, except about the great headlands, which are beset with a rugged mountainous ice. It is notorious, that a strong gale from the north in twenty-four hours covers the whole coast, for numbers of miles in breadth; will fill the straits of *BERING*, and even the *Kamtschatkan* seas; and in smaller pieces extend to its islands. In the *Icy Sea* it consists chiefly of field ice. Some fields, very large, and surrounded with lesser, from forty

* *Nichols's Russian Nations*, i. 176.† *Voyage*, iii. 277.

to fifty yards in extent, to four or five; the thickness of the larger pieces was about thirty feet under water; and the greatest height of others above, about sixteen or eighteen. It was transparent, except on the surface, which was a little porous, and often very rugged: the rest compact as a wall. At times it must pack; for the mountainous ice which the *Cossack Morkoff* ascended (see p. c.) must have been of that nature. The destruction of the ice is not effected by the sun, in a climate where fogs reign in far greater proportion than the solar beams; neither will the streights of BERING permit the escape of quantity sufficient to clear the sea of its vast load. It must, in a little time, become wholly filled with it, was it not for the rage of the winds, which dashes the pieces together, breaks and grinds them into minute parts, which soon melt, and resolve into their original element.

The animals of this sea are very few, and may be reduced to the *Polar Bear*, N° 18; the *Walrus*, N° 71; and Seals. The first does not differ from those of other arctic countries: it is beautifully engraven in tab. LXXIII. of the *Voyage*. Amidst the extraordinary scenery in tab. LII. is given the only accurate figure of the *Walrus* I have ever seen. I cannot but suspect it to be a variety of the species found in the *Spitzbergen* seas. The tusks are more slender, and have a slight distinguishing flexure: the whole animal is also much less. The length of one (not indeed the largest) was only nine feet four inches; its greatest circumference seven feet ten; weight, exclusive of the entrails, about eleven hundred pounds. They lay on the ice by thousands; and in the foggy weather cautioned our navigators, by their roaring, from running foul of it. They are usually seen sleeping, but never without some centinels to give notice of approaching danger: these awakened the next to them, they their neighbors, till the whole herd was roused. These animals are the objects of chase with the *Tschutski*, who eat the flesh, and cover their boats and hovels with the skins. Whales abound in this sea. Fish, the food of Seals, and partly of the polar Bears, must be found here, notwithstanding they escaped the notice of the navigators. Shells and sea-plants, the food of the *Walrus*, cannot be wanting.

Many species of birds (which will occur in their place) were seen traversing this sea. Geese and Ducks were observed migrating southward in *August*; whether from their breeding-place in a circum-polar land, or whether from the probably far-extending land of *America*, is not to be determined. Drift-wood was very seldom seen here. Two trees, about three feet in girth, with their roots, were once observed, but without bark or branches; a proof that they had been brought from afar, and left naked by their contest with the ice and elements.

The sea, from the south of BERING's streights to the crescent of isles between

ANIMALS.

FISH.

BIRDS.

Asia and *America*, is very shallow. It deepens from these streights (as the *British* seas do from those of *Dover*) till soundings are lost in the Pacific Ocean; but that does not take place but to the south of the isles. Between them and the streights is an increase from twelve to fifty-four fathom, except only off *St. Thaddeus* *Nosi*, where there is a channel of greater depth. From the volcanic disposition I am led to believe not only that there was a separation of the continents at the streights of *BERING*, but that the whole space, from the isles to that small opening, had once been occupied by land; and that the fury of the watery element, actuated by that of fire, had, in most remote times, subverted and overwhelmed the tract, and left the islands monumental fragments.

Whether that great event took place before or after the population of *America*, is as impossible, as it is of little moment, for us to know. We are indebted to our navigators for settling the long dispute about the point from which it was effected. They, by their discoveries, prove, that in one place the distance between continent and continent is only thirty-nine miles, not (as a celebrated cavilist* would have it) eight hundred leagues. This narrow freight has also in the middle two islands, which would greatly facilitate the migration of the *Asiatics* into the New World, supposing that it took place in canoes, after the convulsion which rent the two continents asunder. Besides, it may be added, that these streights are, even in the summer, often filled with ice; in winter, often frozen: in either case mankind might find an easy passage; in the last, the way was extremely ready for quadrupeds to cross, and stock the continent of *America*. I may fairly call in the machinery of volcanoes to tear away the other means of transit farther to the south, and bring in to my assistance the former supposition of solid land between *Kamtschatka* and *Oonalascha*, instead of the crescent of islands, and which, prior to the great catastrophe, would have greatly enlarged the means of migration; but the case is not of that difficulty to require the solution. One means of passage is indisputably established.

But where, from the vast expanse of the north-eastern world, to fix on the first tribes who contributed to people the new continent, now inhabited almost from end to end, is a matter that baffles human reason. The learned may make bold and ingenious conjectures, but plain good sense cannot always accede to them. As mankind increased in numbers, they naturally protruded one another forward. Wars might be another cause of migrations. I know no reason why the *Asiatic* north might not be an *officina virorum*, as well as the *European*. The overteeming country, to the east of the *Riphaean* mountains, must find it necessary to discharge its inhabitants: the first great wave of people was forced forward by the next to

* The author of *Recherches Philosophiques sur les Americains*, i. 136.

it, more tumid and more powerful than itself: successive and new impulses continually arriving, short rest was given to that which spread over a more eastern tract; disturbed again and again, it covered fresh regions; at length, reaching the farthest limits of the Old World, found a new one, with ample space to occupy unmolested for ages; till *Columbus* cursed them by a discovery, which brought again new sins and new deaths to both worlds.

The inhabitants of the New do not consist of the offspring of a single nation: different people, at several periods, arrived there; and it is impossible to say, that any one is now to be found on the original spot of its colonization. It is impossible, with the lights which we have so recently received, to admit that *America* could receive its inhabitants (at least the bulk of them) from any other place than eastern *Asia*. A few proofs may be added, taken from customs or dresses common to the inhabitants of both worlds: some have been long extinct in the old, others remain in both in full force.

The custom of scalping was a barbarism in use with the *Scythians*, who carried about them at all times this savage mark of triumph: they cut a circle round the neck, and stripped off the skin, as they would that of an ox*. A little image, found among the *Kalmucs*, of a *Tartarian* deity, mounted on a horse, and sitting on a human skin, with scalps pendent from the breast, fully illustrates the custom of the *Scythian* progenitors, as described by the *Greek* historian. This usage, as the *Europeans* know by horrid experience, is continued to this day in *America*. The ferocity of the *Scythians* to their prisoners extended to the remotest part of *Asia*. The *Kamtschatkans*, even at the time of their discovery by the *Russians*†, put their prisoners to death by the most lingering and excruciating inventions; a practice in full force to this very day among the aboriginal *Americans*. A race of the *Scythians* were styled *Anthropophagi*‡, from their feeding on human flesh. The people of *Nootka Sound* still make a repast on their fellow creatures§: but what is more wonderful, the savage allies of the *British* army have been known to throw the mangled limbs of the *French* prisoners into the horrible cauldron, and devour them with the same relish as those of a quadruped||.

The *Scythians* were fayed, for a certain time, annually to transform themselves into wolves, and again to resume the human shape¶. The new-discovered *Americans* about *Nootka Sound*, at this time disguise themselves in dresses made of the skins of wolves and other wild beasts, and wear even the heads fitted to their

CUSTOMS COMMON
TO AMERICA AND
THE NORTH OF
ASIA.

* *Herodotus*, lib. iv.—Compare the account given by the historian with the *Tartarian icunculus*, in *Dr. PALLAS's Travels*, i. tab. x. a. † *Hist. Kamtschatka*, 57. ‡ *Mela*, lib. ii. c. 1. § *Voyage*, ii. || *Golden's Five Indian Nations*, i. 155. ¶ *Herodotus*, lib. iv.

own *. These habits they use in the chase, to circumvent the animals of the field. But would not ignorance or superstition ascribe to a supernatural metamorphosis these temporary expedients to deceive the brute creation?

In their marches the *Kamtschatkans* never went abreast, but followed one another in the same track †. The same custom is exactly observed by the *Americans*.

The *Tungusi*, the most numerous nation resident in *Siberia*, prick their faces with small punctures, with a needle, in various shapes; then rub into them charcoal, so that the marks become indelible ‡. This custom is still observed in several parts of *America*. The *Indians* on the back of *Hudson's bay*, to this day perform the operation exactly in the same manner, and puncture the skin into various figures; as the natives of *New Zealand* do at present, and as the antient *Britons* did with the herb *Glastum*, or *Woad* §; and the *Virginians*, on the first discovery of that country by the *English* ||.

The *Tungusi* use canoes made of birch-bark, distended over ribs of wood, and nicely sewed together ¶. The *Canadian*, and many other *American* nations, use no other sort of boats. The paddles of the *Tungusi* are broad at each end; those of the people near *Cook's river*, and of *Oonalascha*, are of the same form.

In burying of the dead, many of the *American* nations place the corpse at full length, after preparing it according to their customs; others place it in a sitting posture, and lay by it the most valuable cloathing, wampum, and other matters. The *Tartars* did the same: and both people agree in covering the whole with earth, so as to form a *tumulus*, barrow, or *carpedd* **.

Some of the *American* nations hang their dead in trees. Certain of the *Tungusi* observe a similar custom.

I can draw some analogy from dress: conveniency in that article must have been consulted on both continents, and originally the materials must have been the same, the skins of birds and beasts. It is singular, that the conic bonnet of the *Chinese* should be found among the people of *Nootka*. I cannot give into the notion, that the *Chinese* contributed to the population of the New World; but I can readily admit, that a shipwreck might furnish those *Americans* with a pattern for that part of the dress.

SIMILAR FEATURES.

In respect to the features and form of the human body, almost every tribe found along the western coast has some similitude to the *Tartar* nations, and still retain the little eyes, small noses, high cheeks, and broad faces. They vary in size,

* *Voyage*, ii. 311, 329.—A very curious head of a Wolf, fitted for this use, is preserved in the *LEVERIAN Museum*. † *Hist. Kamtsch.* 61. ‡ *Bell's Travels*, oct. ed. i. 240.

§ *Herodian in Vita Severi*, lib. iii.

|| *De Bry, Virginia*, tab. iii. 111.

¶ *Ysbrandt*

Ides, in *Harris's Coll.* ii. 929.
ii. 222. tab. xiv.

** Compare *Colden*, i. 17; *Lafitau*, i. 416; and *Archæologia*,

from the lusty *Calmuks* to the little *Nogaians*. The internal *Americans*, such as the *Five Indian* nations, who are tall of body, robust in make, and of oblong faces, are derived from a variety among the *Tartars* themselves. The fine race of *Tschutski* seem to be the stock from which those *Americans* are derived. The *Tschutski* again, from that fine race of *Tartars*, the *Kabardinski*, or inhabitants of *Kabarda*.

But about *Prince William's Sound* begins a race, chiefly distinguished by their dress, their canoes, and their instruments of the chase, from the tribes to the south of them. Here commences the *Eskimaux* people, or the race known by that name in the high latitudes of the eastern side of the continent. They may be divided into two varieties. At this place they are of the largest size. As they advance northward they decrease in height, till they dwindle into the dwarfish tribes which occupy some of the coasts of the *Icy Sea**, and the maritime parts of *Hudson's bay*, of *Greenland*, and *Terra de Labrador*. The famous *Japanese* map† places some islands seemingly within the streights of *BERING*, on which is bestowed the title of *Ya Zue*, or the kingdom of the dwarfs. Does not this in some manner authenticate the chart, and give us reason to suppose that *America* was not unknown to the *Japanese*, and that they had (as is mentioned by *Kämpfer* and *Charlevoix*‡) made voyages of discovery, and, according to the last, actually wintered on the continent? That they might have met with the *Eskimaux* is very probable; whom, in comparison of themselves, they might justly distinguish by the name of dwarfs. The reason of their low stature is very obvious: these dwell in a most severe climate, amidst penury of food; the former in one much more favorable, abundant in provisions; circumstances that tend to prevent the degeneracy of the human frame. At the island of *Oonalascha* a dialect of the *Eskimaux* is in use, which was continued along the whole coast, from thence northward. I have before mentioned the similarity in the instruments between the *Americans* of this side of the coast and the *Eskimaux*, which is continued even to *Greenland*.

I cannot think the accounts well supported, that *America* received any part of its first inhabitants from *Europe*, prior to the fifteenth century. The *Welsh* fondly imagine that our country contributed, in 1170, to people the New World, by the adventure of *Madoc*, son of *Owen Gwynedd*, who, on the death of his father, failed there, and colonized part of the country. All that is advanced in proof is, a quotation from one of our poets, which proves no more than that he had distinguished himself by sea and land. It is pretended that he made two voyages: that sailing west, he left *Ireland* so far to the north, that he came to a land unknown, where

* See Mr. *Hearne's Discoveries*. † Given by *Kämpfer* to Sir *Hans Sloane*, and now preserved in the *British Museum* ‡ *Hist. Japan*, i. 67.—*Charlevoix, fastes Chronologiques*, ann. 168.

he

ESKIMAUX.

WELSH.

he saw many strange things: that he returned home, and, making a report of the fruitfulness of the new-discovered country, prevailed on numbers of the *Welsh* of each sex to accompany him on a second voyage, from which he never returned. The favorers of this opinion assert, that several *Welsh* words, such as *gwrando*, to hearken or listen; the isle of *Groeso* or *welcome*; *Cape Breton*, from the name of our own island; *gwynndwr*, or the white water; and *pengwin*, or the bird with a white head; are to be found in the *American* language*. I can lay little stress on this argument, because likeness of sound in a few words will not be deemed sufficient to establish the fact; especially if the meaning has been evidently perverted: for example, the whole *Penguin* tribe have unfortunately not only black heads, but are not inhabitants of the northern hemisphere; the name was also bestowed on them by the *Dutch*, a *Pinguedine*, from their excessive fatness†: but the inventor of this, thinking to do honor to our country, inconsiderately caught at a word of *European* origin, and unheard of in the New World. It may be added, that the *Welsh* were never a naval people; that the age in which *Madoc* lived was peculiarly ignorant in navigation; and the most which they could have attempted must have been a mere coasting voyage.

NORWEGIANS.

The *Norwegians* put in for share of the glory, on grounds rather better than the *Welsh*. By their settlements in *Iceland* and in *Greenland*, they had arrived within so small a distance of the New World, that there is at least a possibility of its having been touched at by a people so versed in maritime affairs, and so adventurous, as the ancient *Norrmans* were. The proofs are much more numerous than those produced by the *British* historians; for the discovery is mentioned in several of the *Icelandic* manuscripts. The period was about the year 1002, when it was visited by one *Biorn*; and the discovery pursued to greater effect by *Leif*, the son of *Eric*, the discoverer of *Greenland*. It does not appear that they reached farther than *Labrador*; on which coast they met with *Eskimaux*, on whom they bestowed the name of *Skrælingues*, or dwarfish people, from their small stature. They were armed with bows and arrows, and had leathern canoes, such as they have at present. All this is probable; nor should the tale of the *German*, called *Turkil*, one of the crew, invalidate the account. He was one day missing; but soon returned, leaping and singing with all the extravagant marks of joy a *bon vivant* could shew, on discovering the inebriating fruit of his country, the grape‡: *Torfaeus* even says, that he returned in a state of intoxication§. To convince his commander, he brought several bunches, who from that circumstance named the country *Vinland*. I do

* *Powel's Hist. Wales*, 228, 229.
Engl. ed. i. 284.

† *Clus. Exot.* 101.

‡ *Mallet's Northern Antiq.*

§ *Hist. Vinlandiæ antiq. per Thorm. Torfaum*, p. 3.

not deny that *North America* produces the true vine*; but it is found in far lower latitudes than our adventurers could reach in the time employed in their voyage, which was comprehended in a very small space. I have no doubt of the discovery; but, as the land was never colonized, nor any advantages made of it, it may be fairly conjectured, that they reached no farther than the barren country of *Labrador*.

The continent which stocked *America* with the human race, poured in the brute creation through the same passage. Very few quadrupeds continued in the peninsula of *Kamtshatka*. I can enumerate only twenty-five which are inhabitants of land; for I must omit the marine animals, which had at all times power of changing their situation: all the rest persisted in their migration, and fixed their residence in the New World. Seventeen of the *Kamtshatkan* quadrupeds are found in *America*: others are common only to *Siberia* or *Tartary*, having, for unknown causes, entirely evacuated *Kamtshatka*, and divided themselves between *America* and the parts of *Asia* above cited. Multitudes again have deserted the Old World, even to an individual, and fixed their seats at distances most remote from the spot from which they took their departure; from mount *Ararat*, the resting-place of the ark, in a central part of the Old World, and excellently adapted for the dispersion of the animal creation to all its parts. We need not be startled at the vast journies many of the quadrupeds took to arrive at their present seats: Might not numbers of species have found a convenient abode in the vast *Alps* of *Asia*, instead of wandering to the *Cordilleras* of *Chili*? or might not others have been contented with the boundless plains of *Tartary*, instead of travelling thousands of miles, to the extensive flats of *Pampas*?—To endeavour to elucidate common difficulties is certainly a trouble worthy of the philosopher and of the divine; not to attempt it would be a criminal indolence, a neglect to

Vindicate the ways of God to man.

But there are multitudes of points beyond the human ability to explain, and yet are truths undeniable: the facts are indisputable, notwithstanding the causes are concealed. In such cases, faith must be called in to our relief. It would certainly be the height of folly to deny to that Being who broke open the great fountains of the deep to effect the deluge—and afterwards, to compel the dispersion of mankind to people the globe, directed the confusion of languages—powers inferior in their nature to these. After these wondrous proofs of Omnipotency,

* *Glover's Account of Virginia, Phil. Trans. Abr. iii. 570.*

it will be absurd to deny the possibility of infusing instinct into the brute creation. *DEUS est anima brutorum*; God himself is the soul of brutes: His pleasure must have determined their will, and directed several species, and even whole genera, by impulse irresistible, to move by slow progression to their destined regions. But for that, the *Llama* and the *Pacos* might still have inhabited the heights of *Armenia* and some more neighboring *Alps*, instead of laboring to gain the distant *Peruvian Andes*; the whole genus of *Armadillos*, slow of foot, would never have absolutely quitted the torrid zone of the Old World for that of the New; and the whole tribe of Monkeys would have gambolled together in the forests of *India*, instead of dividing their residence between the shades of *Indostan* and the deep forests of the *Brazils*. Lions and Tigers might have infested the hot parts of the New World, as the first do the deserts of *Africa*, and the last the provinces of *Asia*; or the Pantherine animals of *South America* might have remained additional scourges with the savage beasts of those antient continents. The Old World would have been overstocked with animals; the New remained an unanimated waste! or both have contained an equal portion of every beast of the earth. Let it not be objected, that animals bred in a southern climate, after the descent of their parents from the ark, would be unable to bear the frost and snow of the rigorous north, before they reached *South America*, the place of their final destination. It must be considered, that the migration must have been the work of ages; that in the course of their progress each generation grew hardened to the climate it had reached; and that after their arrival in *America*, they would again be gradually accustomed to warmer and warmer climates, in their removal from north to south, as they had in the reverse, or from south to north. Part of the Tigers still inhabit the eternal snows of *Ararat*, and multitudes of the very same species live, but with exalted rage, beneath the Line, in the burning soil of *Borneo* or *Sumatra*; but neither Lions or Tigers ever migrated into the New World. A few of the first are found in *India* and *Persia*, but they are found in numbers only in *Africa*. The Tiger extends as far north as western *Tartary*, in lat. 40. 50, but never has reached *Africa*. I shall close this account with observing, that it could be from no other part of the globe except *Asia*, from whence the New World could receive the animal creation.

The late voyage of the illustrious Cook has reduced the probable conjectures of philosophers into certainty. He has proved that the limits of the Old and New World approach within thirteen leagues of each other. We know that the intervening freights are frequently frozen up; and we have great reason to suppose, that the two continents might have been once united, even as low as the *Aleutian* islands, or lat. 52. 30. Thus are discovered two means of passage from *Asia* to *America*; the last

in a climate not more rigorous than that which several animals might very well endure, and yet afterwards proceed gradually to the extreme of heat.

In fact, every other system of the population of the New World is now overthrown. The conjectures of the learned, respecting the vicinity of the Old and New, are now, by the discoveries of our great navigator, lost in conviction. The strained systems of divines, laudably indeed exerted in elucidating SACRED WRIT, appear to have been ill-founded; but, in the place of imaginary hypotheses, the real place of migration is uncontrovertibly pointed out. Some (from a passage in *Plato*) have extended over the *Atlantic*, from the straits of *Gibraltar* to the coast of *North* and *South America*, an island equal in size to the continents of *Asia* and *Africa*; over which had passed, as over a bridge, from the latter, men and animals; wool-headed Negroes, and Lions and Tigers *, none of which ever existed in the New World. A mighty sea arose, and in one day and night engulfed this stupendous tract, and with it every being which had not completed its migration into *America*. The whole Negro race, and almost every Quadruped, now inhabitants of *Africa*, perished in this critical day. Five only are to be found at present in *America*; and of these only one, the Bear †, in *South America*. Not a single custom, common to the natives of *Africa* and *America*, to evince a common origin. Of the Quadrupeds, the Bear, Stag, Wolf, Fox, and Weefel, are the only animals which we can pronounce with certainty to be found on each continent. The Stag ‡, Fox, and Weefel, have made also no farther progress in *Africa* than the north; but on the same continent the Wolf is spread over every part, yet is unknown in *South America*, as are the Fox and Weefel. I suspect, besides, that the Stag hath not advanced farther south than *Mexico*. In *Africa* and *South America* the Bear is very local, being met with only in the north of the first, and on the *Andes* in the last. Some cause unknown arrested its progress in *Africa*, and impelled the migration of a few into the *Chilian Alps*, and induced them to leave unoccupied the vast tract from *North America* to the lofty *Cordilleras*.—My promised Table of Quadrupeds will at once give a view of those which inhabit *North America*, and are either peculiar to it, or are met

* *Catcott on the Deluge*, edit. 2d. p. 139, 15, &c.

† On the reasoning of Mr. *Zimmerman* (*Zool. Geogr.* 476), and the opinion of Mr. *Erxleben* (*Syst. Regn. An.* 508), I give up my notion of the Panther (*Hist. Quad.* N° 153), being a native of *South America*. It is most probable, that the skin which I saw at a furrier's shop, which was said to have been brought from the *Brasils*, had originally been carried there from the western coast of *Africa*, where the *Portuguese* have considerable settlements, and a great slave-trade for their *American* colonies, and where those animals abound.

‡ *Shaw's Travels*, 243. Quere? whether exactly the same with the *European*.

TABLE OF QUADRUPEDS.

with in other countries. It certainly will point out the course they have taken in their migration; and, in case misnomers are avoided, will reduce to the single continent of *Asia* the original country from whence they sprung. Men of the first abilities, and first in learning, who have neglected the study of natural history, will give Lions and Tigers to *America*, misled by the ignorance of travellers, who mistake the Puma, N° 14 of this Work, for the first; and the spotted wild beasts, allied to the Pantherine race, for the second.

TABLE OF QUADRUPEDS.

		H O O F E D.	
GENUS.		OLD WORLD.	NEW WORLD.
I. Ox.	Bison,	N° 1. In parts of <i>Lithuania</i> , and about mount <i>Caucasus</i> ; except there, universally domesticated.	To the west of <i>Canada</i> , and as low as <i>Louisiana</i> . In <i>New Mexico</i> , on the western side of <i>North America</i> .
	Musk,	N° 2. A variety in the interior parts of <i>Guinea</i> , and the south of <i>Africa</i> . See <i>Hist. Quad.</i> i. N° 9.	To the north of <i>Hudson's Bay</i> , from <i>Churchil</i> river to lat. 73, and among the <i>Christinaux</i> , and in <i>New Mexico</i> .
II. SHEEP.	Argali,	p. 12. <i>Sardinia. Corsica. Crete.</i> North of <i>India. Persian Alps.</i> About the <i>Onon</i> and <i>Argun</i> , in <i>Siberia. Mongolia</i> , to lat. 60. East of the <i>Lena</i> , and quite to <i>Kamtschatka</i> .	Suspected to be found in <i>California</i> ; but not on the best authorities.
III. DEER.	Moose,	N° 3. <i>Norway. Sweden</i> , to lat. 64. <i>Russia. Siberia</i> , as low as lat. 53. As far east as <i>Lake Baikal</i> ; and in the north of <i>China</i> to the north of <i>Corea</i> . lat. 45*.	<i>Hudson's Bay. Canada. Nova Scotia. New England</i> ; and near the northern part of the river <i>Ohio</i> .
	Rein,	N° 4. <i>Lapland. Norway. Samoi- edea.</i> Along the <i>Arctic</i> coasts,	<i>Hudson's Bay. Northern parts of Canada. Labrador,</i>

* Or lat. 42, according to Mr. Zimmerman's new Map.

TABLE OF QUADRUPEDS.

CLXIX

GENUS.	OLD WORLD.		NEW WORLD.
		coasts, to <i>Kamtschatka</i> . In the <i>Urallian</i> moun- tains to <i>Kungur</i> , in lat. 57. 10. About Lake <i>Baikal</i> . <i>Spitzbergen</i> . <i>Greenland</i> .	<i>brador</i> . Island of <i>New-</i> <i>foundland</i> .
Stag,	N° 5.	<i>Norway</i> , and most part of <i>Europe</i> to the south. In the north of <i>Asia</i> . <i>China</i> . <i>Barbary</i> . <i>E</i> .	From <i>Canada</i> , over all parts of <i>North America</i> . <i>Mexico</i> .
<i>Virginian</i> ,	N° 6.	— —	From the provinces south of <i>Canada</i> to <i>Florida</i> . Perhaps in <i>Guiana</i> .
<i>Mexican</i> Roe,	N° 7.	— —	Interior north-western parts of <i>America</i> ? <i>Mexico</i> .
Roe,	N° 8.	<i>Norway</i> . <i>Sweden</i> . Most part of <i>Europe</i> , except <i>Russia</i> . <i>Scotland</i> .	According to <i>Charlevoix</i> , in <i>Canada</i> ?

D I G I T A T E D.

D I V. I.

IV. Dog.

Wolf,	N° 9.	From the <i>Arctic</i> circle to the most southern part of <i>Europe</i> . In <i>Asia</i> , from the circle to <i>Persia</i> . <i>Kamtschatka</i> . All parts of <i>Africa</i> .	From <i>Hudson's Bay</i> to the most southern parts of <i>North America</i> .
<i>Arctic</i> Fox,	N° 10.	Within the whole <i>Arctic</i> circle. <i>Iceland</i> . <i>Spitz-</i> <i>bergen</i> . <i>Greenland</i> . <i>Fin-</i> <i>mark</i> . North of <i>Siberia</i> . <i>Kamtschatka</i> , and its isles.	<i>Hudson's Bay</i> . The isles in the high latitudes on the western side of <i>Ame-</i> <i>rica</i> .
Common Fox,	N° 11.	In all parts of <i>Europe</i> , and the cold and temperate parts of <i>Asia</i> . <i>Kamts-</i> <i>chatka</i> ,	From <i>Hudson's Bay</i> , cross the continent to the <i>Fox</i> <i>Isles</i> . <i>Labrador</i> . <i>New-</i> <i>foundland</i> .

TABLE OF QUADRUPEDS.

GENUS.		OLD WORLD.		NEW WORLD.
		<i>chatka</i> , and its furthest isles. <i>Iceland</i> . <i>E</i> .		<i>foundland</i> . <i>Canada</i> . Not further south : a variety only, the Brandt Fox, in <i>Pensylvania</i> .
V. CAT.	Grey, N° 12.	—	—	From <i>New England</i> to the southern end of <i>North America</i> .
	Silvery, N° 13.	—	—	In <i>Louisiana</i> .
	Puma, N° 14.	—	—	From <i>Canada</i> to <i>Florida</i> ; thence through <i>Mexico</i> , quite to <i>Quito</i> in <i>Peru</i> .
	Lynx, N° 15.	Forests of the north of <i>Europe</i> , and many of the south. <i>Spain</i> . North of <i>Asia</i> , and the mountains in the north of <i>India</i> *.		From <i>Canada</i> , over most parts of <i>North America</i> .
VI. BEAR.	Bay Lynx, N° 16.	—	—	In the province of <i>New York</i> .
	Mountain, N° 17.	—	—	<i>Carolina</i> , and perhaps other parts of <i>North America</i> .
	Polar, N° 18.	Within the whole polar circle of <i>Europe</i> and <i>Asia</i> .		The same in <i>America</i> ; also as low as <i>Hudson's Bay</i> and <i>Labrador</i> .
	Black, N° 19.	<i>Jeso Masima</i> , north of <i>Ja- pan</i> ; perhaps in <i>Japan</i> .		In all parts of <i>North Ame- rica</i> .
	Brown, N° 20.	In most parts of <i>Europe</i> , north and south. The same in <i>Asia</i> , even as far as <i>Arabia</i> . <i>Barbary</i> †. <i>Ceylon</i> . <i>Kamtschatka</i> .		To the north-west of <i>Hudson's Bay</i> , and on the western side of <i>America</i> . About <i>Nootka Sound</i> . On the <i>Andes</i> of <i>Peru</i> ‡.
	Wolverene, N° 21.	North of <i>Norway</i> . <i>Lapland</i> . North of <i>Siberia</i> . <i>Kamts- chatka</i> .		As far north as the <i>Copper River</i> , and south as the country between lake <i>Huron</i> and <i>Superior</i> . On the

* As I have been assured by Doctor PALLAS, since the publication of my *History of Quadrupeds*.† *Shaw's Travels*, 249.‡ *Condamine's Travels*, 82.—*Ulloa's Voyage*, i. 461.

TABLE OF QUADRUPEDS.

CLXXI

GENUS.		OLD WORLD.	NEW WORLD.
			the western side of <i>North America</i> .
	Raccoon, N° 22.	— —	From <i>New England</i> to <i>Florida</i> . <i>Mexico</i> . Isles of <i>Maria</i> , near <i>Cape Corientes</i> , in the <i>South Sea</i> .
VII. BADGER.	N° 23.	In the south of <i>Norway</i> , and all the more southern parts of <i>Europe</i> . In the temperate parts of <i>Asia</i> , as far as <i>China</i> eastward. <i>E</i> .	In the neighborhood of <i>Hudson's Bay</i> . <i>Terra de Labrador</i> , and as low as <i>Pensylvania</i> .
VIII. OPOSSUM.	<i>Virginian</i> , N° 24.	— —	As far north as <i>Canada</i> , and from thence to the <i>Brasils</i> and <i>Peru</i> .
IX. WEESEL.	Common, N° 25.	Most parts of <i>Europe</i> . <i>Siberia</i> . <i>Kamtschatka</i> . <i>Barbary</i> . <i>E</i> .	<i>Hudson's Bay</i> . <i>Newfoundland</i> . As far south as <i>Carolina</i> .
	Stoat, N° 26.	All the northern parts of <i>Europe</i> and <i>Asia</i> ; and as far as <i>Kamtschatka</i> and the <i>Kuril</i> isles. <i>E</i> .	<i>Hudson's Bay</i> , and as low as <i>Newfoundland</i> and <i>Canada</i> .
	Pine Martin, N° 27.	North of <i>Europe</i> . Rare in <i>France</i> . Only in the west of <i>Siberia</i> . In <i>China</i> . <i>E</i> .	Northern parts of <i>North America</i> , quite to the <i>South Sea</i> .
	Pekan, N° 28.	— —	<i>Hudson's Bay</i> . <i>Canada</i> .
	Vifon, N° 29.	— —	<i>Canada</i> .
	Sable, N° 30.	<i>Siberia</i> . <i>Kamtschatka</i> . <i>Kuril</i> isles.	<i>Canada</i> .
	Fisher, N° 31.	— —	<i>Hudson's Bay</i> . <i>New England</i> . <i>Pensylvania</i> .
	Striated, N° 32.	— —	<i>Pensylvania</i> to <i>Louisiana</i> .
	Skunk, N° 33.	— —	From <i>Hudson's Bay</i> to <i>Peru</i> .
X. OTTER.	Common, N° 34.	Northern <i>Europe</i> and <i>Asia</i> . <i>Kamtschatka</i> . <i>E</i> .	From <i>Hudson's Bay</i> to <i>Louisiana</i> .

Lesser,

TABLE OF QUADRUPEDS.

GENUS.		OLD WORLD.		NEW WORLD.
	Leffer, N° 35.	About the banks of the	Yaik. Poland. Lithuania.	From New Jersey to Carolina.
	Sea, N° 36.	Kamtschatka.	Kuril isles.	Western coasts of America.
D I V. II.				
XI. HARE.	Varying, N° 37.	Scandinavia. Russia. Siberia.	Kamtschatka. Greenland. E.	Hudson's Bay. About Cook's river.
	American, N° 38.	—	—	From Hudson's Bay to the extremity of North America.
	Alpine, N° 39.	From the Altaic chain to lake Baikal; thence to Kamtschatka.		Aleutian isles. Possibly the west of North America.
XII. BEAVER.	Castor, N° 40.	Scandinavia. About the Jenesei and Kondu. In Casan, and about the Yaik.		From Hudson's Bay to Louisiana.
	Musk, N° 41.	—	—	From Hudson's Bay to Louisiana.
XIII. PORCUPINE.	Canada, N° 42.	—	—	From Hudson's Bay to Virginia.
XIV. MARMOT.	Quebec, N° 43.	—	—	Canada.
	Maryland, N° 44.	—	—	From Pennsylvania to the Bahama isles.
	Hoary, N° 45.	—	—	North of North America.
	Tail-less, N° 46.	—	—	Hudson's Bay.
	Earless, N° 47.	Bohemia. Austria. Hungary. From the Occa over the temperate parts of Siberia. About Yakutz.	Kamtschatka.	Western side of North America.
XV. SQUIRREL.	Hudson, N° 48.	—	—	Hudson's Bay. Labrador.

TABLE OF QUADRUPEDES.

CLXXIII

GENUS.		OLD WORLD.	NEW WORLD.
	Grey, N° 49.	— —	<i>New England to Peru and Chili.</i>
	Black, N° 50.	— —	<i>New England to Mexico.</i>
	Flying, N° 51.	— —	<i>From the southern part of Hudson's Bay to Mexico.</i>
	Hooded, N° 52.	— —	<i>Virginia.</i>
	Severn River, } N° 53. }	— —	<i>Hudson's Bay.</i>
XVI. DORMOUSE.	Striped, N° 54.	<i>Siberia, as high as lat. 65.</i>	<i>Hudson's Bay to Louisiana.</i>
	English? N° 55.	<i>Sweden, and all Europe south. E. Carolina?</i>	
XVII. RAT.	Black, N° 56.	<i>All Europe. Many of the South Sea islands. E.</i>	<i>The rocks among the Blue Mountains.</i>
	American, N° 58.	<i>Mongolia.</i>	<i>North America.</i>
	Water, N° 59.	<i>From Lapland to the south of Europe. From Peterf-burgh to Kamtschatka, and as low as the Caspian sea, and Persia. E.</i>	<i>From Canada to Carolina.</i>
	Mouse, N° 60.	<i>Universal. E.</i>	<i>Among the rocks, with the Black Rat.</i>
	Field, N° 61.	<i>All Europe. Not beyond the Urallian chain. E.</i>	<i>Hudson's Bay. New York.</i>
	Virginian, N° 62.	— —	<i>Virginia.</i>
	Labrador, N° 63.	— —	<i>Hudson's Bay. Labrador.</i>
	Hudson's, N° 64.	— —	<i>Same places.</i>
	Meadow, N° 65.	<i>Sweden. All temperate Russia. In Siberia only to the Irtysh. E.</i>	<i>Hudson's Bay. Newfoundland.</i>
	Hare-tailed? } N° 66. }	<i>Siberia.</i>	<i>Hudson's Bay.</i>
XVIII. SHREW.	Foetid, N° 67.	<i>Europe. Siberia. Kamtschatka. E.</i>	<i>Hudson's Bay. Carolina.</i>
XIX. MOLE.	Long-tailed, } N° 68. }	— —	<i>New York. Interior parts of Hudson's Bay.</i>
	Radiated, N° 69.	— —	<i>New York.</i>
	Brown, N° 70.	— —	<i>New York.</i>

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TABLE OF QUADRUPEDS.

D I V. III.

GENUS.		OLD WORLD.	NEW WORLD.
XX. WALRUS.	<i>Arctic</i> , N° 71.	<i>Spitzbergen. Greenland. Nova Zemlja.</i> The coast of the <i>Frozen Sea.</i> And on the <i>Asiatic</i> side, to the south of <i>Bering's</i> streights, as low as lat. 62. 50.	<i>Hudson's Bay. Gulph of St. Laurence.</i> On the western side of <i>America</i> , as low as lat. 58. 42.
XXI. SEAL.	Common, N° 72.	All the <i>European</i> and northern <i>Asiatic</i> seas, even to the farthest north. <i>Kamtchatka. E.</i>	Northern seas of <i>America.</i>
	Great, N° 73.	<i>Greenland and Kamtschatka. E.</i>	West of <i>North America.</i>
	Leporine, N° 75.	<i>White Sea. Iceland. Spitzbergen. Kamtschatka.</i>	There can be no doubt that every species of Seal is found on the <i>American</i> coast.
	Harp, N° 77.	<i>Spitzbergen. Greenland. Iceland. White Sea. Kamtschatka.</i>	
	Urfine, N° 79.	<i>Kamtchatka. New Zealand.</i>	West of <i>America</i> , and from the isle of <i>Gallipagos</i> to <i>New Georgia.</i>
	Leonine, N° 80.	<i>Kamtchatka.</i>	West of <i>America.</i> Streights of <i>Magellan. Staten land. Falkland isles.</i>
XXII. MANATI.	Whale-tailed, } N° 81. }	<i>Bering's isle, and near the isle of St. Mauritius.</i>	West of <i>America.</i>
	Sea Ape, p. 181.	— —	West of <i>America.</i>

D I V. IV.

XXIII. BAT.	<i>New York</i> , N 82.	<i>New Zealand.</i>	<i>New York.</i>
	Long haired, } N° 83. }	— —	<i>Carolina.</i>
	Noctule, N° 84.	<i>France. E.</i>	<i>Hudson's Bay.</i>

Some

Some years ago a very important discovery was made, not very remote from the place where Captain Cook was obliged to desist from his northern voyage. Mr. Samuel Hearne, in the service of the Hudson's Bay Company, by direction of the governors, began a journey, on December 7th 1770, towards the northern limits of America. He went attended only by Indians, with whom he had been long acquainted. He set out from Prince of Wales fort, 58. 50, north lat. He for a long space took a north-western course, crossed Meniscytic lake, in lat. 61, a water thirty-five miles in breadth, full of fine islands, and joining with the river Namassy. He passed over Wiethen and Cassed lakes, and from the last kept due west. In April he reached Thleweyaza Yeth, a small lake in long. 19, west from Churchill fort, lat. 61. 30, near which he made some stay to build canoes, now requisite against the breaking up of the frost. From that lake he began a course due north, and crossed a chain of lakes, of which Titumeg is one. In lat. 64. he went over Pesheew lake; after that, the great lake Cogeed, out of which issues a river pointing north-east, which is supposed to fall into Baffin's bay. About the middle of June he crossed the great river Conge-cathawha-chaga, in lat. 68. 46; and from Churchill river west long. 24. 2. About those parts are the Stoney Mountains, extending in longitude from 116 to 122 from London: craggy, and of a tremendous aspect. On July 7th he arrived at Buffalo lake, in lat. 69. 30: here he first saw the Musk Buffalo, N^o 2. Near the north end is Grizzle Bear-hill, in about lat. 70, so called from its being the haunt of numbers of those animals. On July 13th he reached the banks of Copper River, which runs due north into the Icy Sea. About the south end is much wood, and very high hills. Its current is very rapid, and its channel choaked with shoals, and crossed with stoney ridges, which form three great cataracts. Its banks are high, the breadth about a hundred and eighty yards; but in some places it expands into the form of a lake. In an island of the river unfortunately happened to be a summer encampment of five tents of Eskimaux. The Indians attendant on Mr. Hearne grew furious at the sight of them. It is their firm opinion, that these savages are magicians, and that all the evils they experience result from their incantations. Mr. Hearne in vain solicited his Indians to forbear injuring these poor people. They, with their usual cowardice, deferred the attack till night, when they surprised and murdered every one, to the number of between twenty and thirty. A young woman made her escape, and embraced Mr. Hearne's feet; but she was pursued by a barbarian, and transixed to the ground. He observed in their tents (which were made of deer-skins with the hair on) copper vessels, and whale-bone, and the skins of Seals, wooden troughs, and kettles made of a soft stone (by his description a *lapis ollaris*), and dishes and spoons formed from

JOURNEY TO THE
ICY SEA.

COPPER RIVER.

ESKIMAUX.

the thick horns of the Buffalo. Their arms are spears, darts, and bows and arrows; the last pointed with stone or copper, but most rudely made, for want of proper tools. In their dress they much resemble the *Eskimaux* of *Hudson's Bay*, but the tails of their jackets are shorter; neither do the women, like them, stiffen out the tops of their boots. Their canoes differ in not having long projecting prows, but in other respects are of the same construction. In most circumstances these people resemble those of the *Bay*; and differ materially only in one, for the men in these pull out by the roots all the hair of their heads.—Mr. *Hearne* first saw the sea on *July* 16, at the distance of eight miles. He went to the mouth of the river (in lat. 72; west long. from *London* 121) which he found full of shoals and falls, and inaccessible to the tide, which seemed to flow twelve or fourteen feet. The sea was at this time full of ice, and on many pieces he saw Seals. The land trended both to the east and to the west, and the sea was full of islands. The land about *Copper* river, for the space of nine or ten miles to the sea, consisted of fine marshes, filled in many places with tall Willow, but no sort of berry-bearing shrubs. There are no woods within thirty miles of the mouth of *Copper* river; and those which then appear, consist of ill-shaped and stunted Pines.

The people who live nearest to this river, are the *Copper-mine Indians*, and the *Plat-cotes de Chiens*, or *Dog-ribbed Indians*; these have no direct commerce with *Hudson's Bay*, but sell their furs to the more southern *Indians*, who come for them, and bring them down to the settlements. The *Dog-ribbed Indians* still make their knives of stones and bones, and head their arrows with slate. The *Copper Indians* have abundance of native copper in their country; they make with it ice-chisels and arrow-heads. The mine is not known; but I find that an *Indian* chief, who had many years ago communication with a Mr. *Frost*, one of the Company's servants, says, that the copper was struck off a rock with sharp stones; and that it lay in certain islands far to the northward, where was no night during summer*.

Mr. *Hearne* set out on his return the 22d of *July*. He took, in some places, a route different from what he did in going, and got to the settlements in *June* 1772. I have perused the journal, and had frequent conversation with Mr. *Hearne* the last year. I took the liberty to question him about the waters he had crossed during winter upon the ice; and whether they might not have been at that time obstructed freights, a passage to the *Pacific Ocean*? He assured me, that he could make no mistake: that he passed over many of them in canoes during the sum-

* *Dobbs's Account of Hudson's Bay, &c.* 47.

mer, and that the others had large rivers running out of them, almost every one to the west: that the *Indians*, who crossed them annually, in their way to the north to trade for furs, were exceedingly well acquainted with them, and knew them to be fresh-water lakes; and in particular used to fish in them for Pikes, fish notoriously known never to frequent salt-water.

I must now take a blind unguided course along the *Icy Sea*. The charts give the land a turn to the south, in lat. 81. long. 22 from *London*. This is the most northern extremity of the country called *Greenland*, if it reaches so far; but, beyond the discovery by Mr. *Hearne*, in lat. 72, the northern limits given in our charts appear to be merely conjectural. To the south, on the eastern coast, in 1670, was seen land in lat. 79. Another part, in lat. 77. 30, called in the maps the land of *Edam*, was seen in 1655. The inlet named *Gael-hamkes*, in lat. 75, was discovered in 1664. A headland was observed, in 1665, a degree further south: and in 1607 our celebrated *Hudson* discovered what he named *Hold with Hope*, in lat. 73*. Excepting the last, the rest of the attempts were made by the *Danes*, for the recovery of *Old Greenland*. *Gael-hamkes* alone continues known to navigators, and is annually frequented by *European* Whale-fishers, who extend their business even to this coast. It is represented as a great strait, twenty-five leagues wide, communicating with *Baffin's Bay*. A species of Whale, frequent in *Davis's Straights*, and not found on this side of the coasts, is often seen here harpooned with the stone weapons of the inhabitants of the opposite country; which fish must have escaped through this passage†. The land to the north of *Gael-hamkes* is level, and not very high; and within five or six leagues from it are soundings. That to the south is very lofty, and rises into peaks like that of *Spitzbergen*; and the sea opposite to it is fathomless‡.

In lat. 71. long. 8. west from *London*, is *John Mayen's* island, formerly much frequented by Whale-fishers; but those animals have now left the neighboring sea. The north end rises into a prodigious mountain called *Beerenberg*, or the *Bears*, from its being the haunt of numbers; but it is so steep as to be inaccessible to all human creatures. The sea, within musket-shot from shore, was sixty fathoms deep; a little farther the depth is past the reach of the line||.

Opposite to *Iceland* begins the once-inhabited part of *Old Greenland*. A very deep strait opens a little opposite to *Snæfelnas*, and runs across *Greenland*, near *Jacob's Haven*, into *Davis's Straights*, so as quite to insulate the country: it is

GREENLAND.

JOHN MAYEN'S
ISLE.

OLD GREENLAND.

* *Purchas*, iii. 568.
Spitzb. 186.

† *Voyages par de Pagès*, ii. 222.

‡ Same.

|| *Marten's*

now

PEOPIED BY NOR-
WEGIANS.VOYAGE OF THE
ZENI.

now almost entirely closed with ice, and annually fills the sea with the greatest icebergs, which are forced out of it. A little to the north of the eastern entrance are two mountains of a stupendous height, called *Blaaferk* and *Huitferk*, cased in perpetual ice. The whole country, to the southern end, consists of similar mountains: a few exhibit a stoney surface; but the greater part are genuine *glacieres*, shooting into lofty peaks, or rugged summits: yet such a country as this became the settlement of numbers of *Norwegians* during several centuries. The valiant *Eric Raude*, or the *Red*, having committed a murder in his own country (a common cause for seeking adventures, with the heroes of *Greece* as well as *Scandinavia*) fled here in the tenth century. Numbers of his countrymen followed him. *Leif*, his son, became a convert to Christianity. Religion flourished here: a bishoprick was established, and monasteries founded. The cathedral was at *Gardar*, a little to the south of the polar circle.

In *Hackluyt* * is a relation of the voyage of the two *Zeni* (noble *Venetians*) who in 1380 visited this country, and give evidence to the existence of the convent, and a church dedicated to *St. Thomas*, possessed by friers preachers. It appears to have been built near a vulcano, and the materials were lava, cemented with a sort of *pulvis puteolanus*, which is known to be a volcanic attendant. A spring of boiling water was near the house, and was conveyed into it for all their culinary uses. I am not averse to giving credit to this account; there being no reason to deny the former existence of burning mountains, when such numbers are to be found in the neighboring *Iceland*; and at this very time there is a fountain of hot water in the isle of *Onortok*, not remote from *Cape Farewell*†. A strange phraseology runs through the voyage of these two brethren, and perhaps some romance; but so much truth is every where evident, that I hesitate not to credit the authenticity.

Torfaeus enumerates seventeen bishops who presided over the diocese. The last prelate was appointed in 1408. The *black death* had almost depopulated the country not long before that period. Probably the surviving inhabitants fell victims to want, or were extirpated by the natives: for, after that year, we hear no more of them. It certainly had been well inhabited: the ruins of houses and churches evince its former state. In the fifteenth century the kings of *Denmark* attempted to discover whether any of the antient race remained; but all in vain: the adventurers were driven off the coast by the ice with which it was blocked up, which remains an invincible obstacle to re-settle the eastern coast, even were there the least temptation. All is a dreadful tract from lat. 81 to *Staten Hook* or *Cape Farewell*, its

* Vol. iii. 123; and *Purchas*, iii. 610.† *Crantz*, i. 18.

southern extremity, on an isle off that point, in lat. 59; on both sides deeply indented with bays, bounded by icy promontories. Many of these bays had been parts of pervious streights, which had divided the country into several islands; but are now totally obstructed with ice. Besides that I before mentioned, was one in lat. 63, called *Bär-sund*; and that in 62. 50, immortalized by the name of our celebrated sailer *Frobisher*, who penetrated into it sixty leagues, in his first voyage in 1576, in his search for a passage to *Cathaya*; but imagined that *Asia* bounded the right side, and *America* the left *. He met with inhabitants, describes them and their œconomy, and is particular about their great dogs, and their use of them in drawing their sledges. In his second voyage he found a *Narwhal* dead on the shore, and has given a figure of it. 'This horne,' says he, 'is to be seene and reserved as a jewel by the Queens Majesties commandemēt, in her wardrop of robes †.' — The original map of his voyages is a singular sketch of erroneous supposition. He makes his streights reach to the *Icy Sea*, opposite to what he calls *Cathaya*, just to the north of what is made to resemble the new-discovered streights of *Bering*; which, in the map, are called those of *Anian*; and accidentally gives them a tolerably just form ‡. Those of *Anian* are equally fabulous with those of *de Fuca*, but of prior invention; and, like them, were sayed to have been a passage from the South to the North sea ||. Queen *Elizabeth* bestowed on his discoveries the name of *Meta Incognita*.

FROBISHER'S
STREIGHTS.

Greenland was re-settled with *Norwegians* in 1721, by the zeal of the Reverend Mr. *Hans Egede*, the *Arctic* apostle §. He continued, till 1735, preaching the Gospel to the poor natives; and had not only the happiness of seeing his labors blessed with effect, but his example followed by a numerous set of missionaries, who have formed (on the western side only) many settlements, which flourish even to this day. Mr. *Egede* returned to *Denmark*, founded a seminary for students in the *Greenland* language, from which missionaries were to be drawn; and finished his pious life in 1754.

NEW GREEN-
LAND.

At *Cape Farewell* begins the vast opening between *Greenland* and *Terra de Labrador*, which leads to *Hudson's Bay*. Between the west side of *Greenland* and certain vast islands, are *Davis's Streights*, which lead to *Baffin's Bay*. These islands

* 'A true Discourse of the late Voyages of Discoverie for finding a Passage to *Cathaya* by the north-west, under the Conduct of *Martin Frobisher*, General. Printed by *Henry Bynnyman*, 1578.' First Voyage, p. 48.

† The Same, Second Voyage, p. 19.

‡ In the same book.

|| See an account of these imaginary streights in *Drage's Voy. to Hudson's Streights*, vol. ii. 68.

§ *Grantz*, i. 279. 285.

in different maps bear different names, and in one are even consolidated; so little are these parts known*.

TREES.

ICE-BLINCK.

TIDES.

To describe *Greenland*, would be to ring changes on ice, and snow, and lofty mountains (some, according to Mr. *Crantz*, a thousand fathoms high) rising into broken crags or sharp spires, or vallies with no other garniture than moss and some moor grass; and in some parts are long flat mountains, clad with perpetual ice and snow. Where the birds, by their dung, have formed a little soil, some plants are found. Mr. *Crantz* † enumerates about twenty-four species, besides the cryptogamous kinds. *Egede* observed, in lat. 60 or 61, small Junipers, Willows, and Birch; the last two or three yards high, and as thick as a man's leg ‡; an amazing tree for this country. *Davis* also saw some low Birch and Willows as high as about lat. 65 §. Nature here suffers the reverse of melioration; the *glacieres* constantly gain on the vallies, and destroy all hopes of improvement. That amazing *glaciere*, the *Ice Blinck* or *Ice Glance*, on the western coast, is admirably described by Mr. *Crantz*. I must refer to him for the account, after saying, that it is a stupendous aggregate at the mouth of an inlet, and of an amazing height; the brilliancy of which appears like a glory to the navigators at many leagues distance. It forms, beneath, a series of most magnificent arches, extending eight leagues in length, and two in breadth; through these are carried, at the ebb of tide, great fragments of ice, which have fallen from various *icebergs*, and prove one supply to the ocean of its floating ice ||. The streights, now obstructed to navigation, are supposed to be open at bottom, by arches similar to those spoken of; for an immense quantity of ice is annually discharged from their mouths**.

I have mentioned the islands of ice at p. LXXXV; for those of *Spitzbergen* have every thing in common with those of *Greenland*. Perhaps the colors in the last may be more brilliant; the green being as high as that of the emerald, the blue equal to that of the sapphir; the first, Mr. *Egede* attributes to the congelation of fresh, the latter to that of salt-water. ††. Here are frequent instances of the freezing of the sea-water. The frost often forms a pavement of ice from island to island, and in the confined inlets ‡‡.

The tides rise at the south of this country three fathoms, in lat. 65; on the west side two, or in spring-tides three; at *Disco*, about lat. 69, only one; further north it sinks even to one foot. In great spring-tides, especially in winter, is this strange phænomenon: springs of fresh-water are forced up on the shores in places where they were before unknown §§.

* Collate Mr. *Middleton's* map, and others.

§ *Hackluyt*. iii. 101.

‡‡ *Crantz*, i. 43.

|| *Crantz*. i. 21 to 24.

§§ Same, 41.

† Vol. i. 60.

** Same, 19.

‡ *Hist. Greenl.*

†† *Egede*, 55.

During

During the long day of the short summer is considerable heat. The long winter is a little cheered by the *Aurora Borealis*, which appears and radiates with unusual brilliancy and velocity in the spring, about the time of the new moon. Fogs give a gloom to the summer, and frost-smoke often adds horror to the winter. It rises out of the opening of the ice in the sea, and peels off the very skin from those who venture to approach it. The effect of the frost is very violent on the human body; but less so than in the north-east of *Siberia*, where at times it is fatal to stir abroad, even when protected with every guard of cloathing *.

The *Greenlanders* fastidiously style themselves *Innuits*, i. e. *men*, as if they were the standard of the human race; yet few of them attain the height of five feet; but are well made. Their hair is long and black; their faces flat; their eyes small. They are a branch of the *Eskimaux*, the small race which borders all the *Arctic* coasts. They originated from the *Samoied Asiatics*, who, passing over into the New World, have lined the coast from *Prince William's Sound* on the western side, in lat. 61, quite to the southern part of *Labrador* on the eastern. They crept gradually in their little canoes northward, and diminished in size in their progress, till they attained their full degeneracy in the *Eskimaux* and *Greenlanders*. Similar people, or vestiges of them, have been seen in different places, from *Prince William's Sound* to the north of *BERING's* freights. They were again seen by *Mr. Hearne* in lat. 72. By report of the *Greenlanders* of *Disco* bay, there are a few inhabitants in *Baffin's* bay, in lat. 78. *Egede* says, that the country is peopled to lat. 76 +; but the highest colonized spot is at *Noegsook*, in lat. 71. They are a race made for the climate, and could no more bear removal to a temperate clime, than an animal of the torrid zone could into our unequal sky: seasons, and defect of habitual food, would soon bring on their destruction. This race has been found to agree in manners, habits, and weapons, and in many instances in language, from *Prince William's Sound* to the end of *Labrador*, a tract extending near fifteen hundred leagues †. They only line the coasts; for the *Indians* persecute them with merciless hatred, and almost push them into the sea. They imagine these poor creatures to be magicians, and that to them they owe every ill success in life §. The numbers of the *Greenlanders* are now amazingly diminished. In 1730 there were thirty thousand souls, at present only ten thousand; a decrease chiefly owing to the ravage of the small-pox.

Greenland has been most happy in its Zoologist. The Reverend *Mr. Otto Fabricius*, whom a laudable zeal for enlightening the minds of the gross inhabitants,

* *Voyage en Siberie*, i. 381. † As quoted in *Green's* map of *America*. ‡ *Cook's Voy.* i. Pref. LXXIV. § Same, ii. 43.

led to these parts, hath given a most ample and classical account of the animals. His *Fauna Groenlandica* is among the first works of the kind. I eagerly expect the performance of the promised remainder of the work.

QUADRUPEDS.

The Quadrupeds of this country are, the *Rein-deer*, N° 4, which are here merely considered as objects of the chase. Their number is lessened greatly, and they are now only found in the most remote parts. The *Ukalcrajek* * is, I suspect, an animal of imagination. It is said, by the *Greenlanders*, to be long-eared, hare-lipped, and to resemble that animal; to have a short tail; to be of a white color, with a dark list down the back, and of the size of a Rein-deer. The Dogs, p. 41, resemble Wolves in figure, size, and nature. Left to themselves, they hunt in packs the few animals of the country, for the sake of prey. They exactly resemble the Dogs of the *Eskimaux* of *Labrador*. It is probable, that they might have been originally brought here by their masters, who first fled that country, and populated *Greenland*. ARCTIC FOXES, N° 10, abound here; and, with POLAR BEARS, N° 18, infest the country. Had I not such excellent authority, I should have doubted whether the *Wolverene*, N° 21, usually an inhabitant of wooded countries, was found in *Greenland*; but it is certainly met with, yet rarely, in the southern parts, where it preys on the Rein-deer and White Hares. It must have been originally wafted hither on the ice from *Terra de Labrador*, the nearest place to this, of which it is an inhabitant. The VARYING HARE, N° 37, is very common. The WALRUS, and five species of Seals, inhabit these seas: the Common, N° 72; the Great, N° 73; the Rough, N° 74; the Hooded, N° 76; the Harp, N° 77; and an obscure species, called by the *Laplanders*, *Fatne Vindae*, with a round head and long snout, bending like the proboscis of an elephant †. Mr. *Fabricius* adds to the marine animals, the Whale-tailed *Manati*, N° 81, of which he once saw the head partly consumed.

The Polar Bears, Seals, and Manati, were originally natives of these countries. The other Quadrupeds found their way here from either *Hudson's Bay* or *Labrador*, on the islands of ice. The Arctic Fox found the same kind of conveyance from *Greenland* to *Iceland* as it did with the Rein-deer to *Spitzbergen*. To the last was wafted, probably from *Labrador*, the Common Weasel, the Red or Common Fox; and the Mouse, mentioned p. XLIX, missed *Greenland*, but arrived at and stocked *Iceland*; and the Common Bat was originally tempest-driven to the latter from *Norway*: the *Wolverene* and *Varying Hare* never reached farther than *Greenland*.—This seems the progress of Quadrupeds in the frigid zone, as high as land is found.

* *Faun. Groenl.* p. 26.

† Same, p. 17.—*Leem's Lapm.* 214, 215.

GREENLAND.

CLXXXIII

The note * gives the sum of the Birds, land and water.

The numbers of Fish which frequent these icy seas are very considerable. They are, indeed, the great rendezvous of Whales. There is a fishery for them by the Dutch, in Disko Bay, as early as April †. The natives take them at other times, cut off the blubber in an awkward manner, and preserve that and the whale-bone as articles of commerce. It is certain that they do not drink train-oil, like the true Eskimaux, and some other congenerous people ‡. The species which frequent Greenland are, the MONODON MONOCEROS, or NARWHAL, *Lin. Syst.* 105: the MONODON SPURIUS, *Faun. Groenl.* N° 19; a rare species, with two teeth, about an inch long, projecting from the extremity of the upper jaw: the BALAENA MYSTECETUS, or COMMON WHALE, *Br. Zool.* iii. N° 16: BALAENA PHYSALUS, or FINFISH, N° 18; BALAENA MUSCULUS, or ROUND-LIPPED, N° 19: the BALAENA ROSTRATA, *Faun. Groenl.* N° 84; a very small species with a long snout: PHYSETER MACROCEPHALUS, *Faun. Groenl.* N° 25: PHYSETER CATODON, or ROUND-HEADED CACHALOT, *Br. Zool.* iii. N° 22: PHYSETER MICRUPS, or BLUNT-HEADED CA-

BIRDS.
FISHES.

A.		Hebridal Sandpiper, N° 382	Glaucous, p. 532 B.
* Cinereous Eagle, p. 214	B.	Dunlin Sandpiper, N° 391	Ivory Gull, N° 457
Greenland Falcon, 220	E.	Alwargrim Plover, N° 398	Tarrock, p. 533 D.
Gyrfalcon, 221	F.	Ringed Plover N° 401	Arctic, N° 459
Collared Falcon, 222	G.		Fulmar Petrel, N° 461
Long-eared Owl ? N° 117	C.		Shearwater P. N° 462
Snowy Owl, N° 121		Grey Phalarope N° 412	Goosander N° 465
Raven, N° 134		Red Phalarope, N° 413	Red-breasted G. N° 466
Ptarmigan, p. 315	B.		Canada Goose ? N° 471
Snow Bunting, N° 222	D.		Grey lag Goose, N° 473
Lulean Finch, p. 380	B.	Great Auk, N° 424	Brant, N° 478
Less Red-poll N° 262		Razor-bill, N° 425	Bernacle, N° 479
Wheat-ear p. 420	P.	Black-billed, N° 426	Eider Duck, N° 480
Crested Titmouse ? p. 427	F.	Puffin, N° 427	King Duck, N° 481
		Little, N° 429	Golden Eye N° 486
		Black Guillemot, N° 437	Pin-tail N° 500
		Northern Diver, N° 439	Long-tailed, N° 501
B.		Red-throated D. N° 443	Harlequin, N° 490
Common Heron, N° 433		Great Tern, N° 448	Mallard, N° 494
Snipe, N° 366		Black-backed Gull, N° 451	Morillon, p. 573 F.
Jaddeka, N° 375		Cinereous G. (<i>Lin. Syst.</i>) 224	
Striated Sandpiper, N° 383			

The fifth species is very doubtful. Except the Canada Goose ? there is not a species of Bird which is not found in Europe. This induces me to place all those of Greenland in the appendages to the genera, as they seem to have little clame to America.

† Crantz, i. 118.

‡ Egede, 134.—Crantz, i. 144.

CHALOT, *Br. Zool.* iii. N° 21: DELPHINUS ORCA, or SPEKHUGGER, *Faun. Groenl.* N° 28; the tormentor of the greater Whales, whom they will fix on, as Bull-dogs will on a Bull, and tear out large pieces from their bodies: DELPHINUS PHOCA, the PORPESSE, *Br. Zool.* iii. N° 25: DELPHINUS DELPHIS, or the Dolphin, N° 24: the DELPHINUS TURSIO, or the GRAMPUS, N° 26: and finally, the DELPHINUS ALBICANS, or BELUGA WHALE, p. 182 of this Work, which enlivens those waters with its resplendent whiteness.

Among the cartilaginous species are the RAIA FULLONICA, *Lin. Syst.* 396: the WHITE SHARK, *Br. Zool.* iii. N° 42, equally voracious from the equator to the Arctic circle; and, with fierceness unsubdued by climate, often bites in two the Greenlanders sitting in their Seal-skin canoes: the PICKED SHARK, *Br. Zool.* N° 40: the BASKING SHARK, N° 41: the SQUALUS PRISTIS, or SAW SHARK, *Lin. Syst.* 401: the LUMP SUCKER, *Br. Zool.* iii. N° 57; a great article of food with the natives: CYCLOPTERUS SPINOSUS, or SPINY SUCKER, *Faun. Groenl.* N° 93: CYCLOPTERUS MINUTUS, or the MINUTE, N° 94: the UNCTUOUS SUCKER, *Br. Zool.* N° 58.

Of the boney Fishes, the EEL, *Br. Zool.* N° 63, is rarely found in the southern rivers. The WOLF-FISH, N° 65, appears here in the spring with the Lump Fish, and disappears in autumn. The Greenland Faunist describes a lesser variety, in N° 97, b. The LAUNCE, *Br. Zool.* iii. N° 66: the OPHIDIUM VIRIDE, *Faun. Groenl.* N° 99: the HADDOCK, *Br. Zool.* iii. N° 74, is plentiful here in winter. GADUS CALLARIAS, or VARIED COD, *Lin. Syst.* 436; and COMMON COD, *Br. Zool.* iii. N° 73, frequent the coasts in spring and autumn. The POUT, N° 75: GADUS VIRENS, or GREEN COD, *Lin. Syst.* 438: the HAKE, *Br. Zool.* N° 81: the LING, N° 85: and the GADUS BROSME, *Faun. Groenl.* N° 107, are species of Cod-fish found in these seas. The SPOTTED BLENNY, *Br. Zool.* iii. N° 93. A new species, the BLENNIUS PUNCTATUS, *Faun. Groenl.* N° 110; and that curious fish the CORYPHAENA RUPESTRIS, N° 111, *Ast. Nidr.* iii. tab. 111.; the first rare, the last frequent in the deep southern bays. The ARMED BULL-HEAD, *Br. Zool.* iii. N° 98. The FATHER LASHER, N° 99, is a most common fish, and singularly useful. COTTUS SCORPIOIDES, *Faun. Groenl.* N° 114, or QUADRICORNIS, *Lin. Syst.* 451; and the RIVER BULL-HEAD, *Br. Zool.* iii. N° 97, are found here in salt-water. The ZEUS GALLUS, *Lin. Syst.* 454, a fish of the hottest parts of South America, is suspected to be found here. The HOLIBUT, *Br. Zool.* iii. N° 102, is very common; as is the PLEURONECTES CYNOGLOSSUS, *Faun. Groenl.* N° 118; and the new species, PL. PLATESSOIDES, N° 119, is seen here in small numbers near the mouths of rivers. LAERUS EXOLETUS, *Faun. Groenl.*

N° 120:

Nº 120: STRIPED WRASSE? *Br. Zool.* iii. 119: *PORCA NORVEGICA*, *Faun. Groenl.* Nº 121: THREE-SPINED STICKLEBACK, *Br. Zool.* iii. Nº 129, not only in rivers but places overflowed by the sea. The SALMON, Nº 143, is extremely scarce at present; yet in *Davis's* time, was among the presents made to him by the savages; and *Baffin* * saw most amazing shoals of these fish in *Cockin's Sound*, on this western coast, in lat. 65. 45. The SALMO CARPIO, *Faun. Groenl.* Nº 124, is one of the most common and useful fishes; is frequent in the lakes, rivers, and estuaries. The CHAR, *Br. Zool.* iii. Nº 149, conforsts with the other, and is as common. The SALMO STAGNALIS, *Faun. Groenl.* Nº 126, a new species, found remote in the mountain lakes, and caught only by the hunters of Rein-deer. The SALMO RIVALIS, Nº 127, is another, inhabiting small brooks. The SALMO ARCTICUS, Nº 128, or CAPELIN of the *Newfoundland* fishers †, is the last of this genus, but the most useful; the daily bread, and the fish in highest esteem with the *Greenlanders*, and providentially given to them in the greatest abundance. The COMMON HERRING, *Br. Zool.* iii. Nº 160, is a rare fish in these seas; as is the ANCHOVY, Nº 163.

The same indefatigable Zoologist hath discovered in this country (including crustaceous) not fewer than ninety-one Insects, a hundred and twenty-six Vermes, fifty-nine shells, and forty-two Zoophytes.

JOHN DAVIS, a most able seaman, was the first who examined the west side of *Greenland*. Before his time the eastern coast was the only part known to *Europeans*. He made there three different voyages, in 1585, 1586, and 1587. After doubling *Cape Farewell*, he founded, and could not find bottom with three hundred fathoms of line. North of what he properly called *the Land of Desolation*, he arrived in a filthy, black, and stagnating water, of the depth of a hundred and twenty fathoms. He found drift-wood in lat. 65, and one entire tree sixty feet long, with its root; the species were Fir, Spruce, and Juniper †, which came down from remote places on the banks of the rivers of *Hudson's Bay*; for Mr. *Hutchins* assures me, that to this day, in certain years, vast quantities of timber are brought down with the ice at the opening of the rivers. He also met with black Pumices ‡, whether from neighboring vulcanoes, burning or extinct, remains unknown; or whether, which is most probable, conveyed there from *Iceland*. The stone of the country is mostly granitical. Some sand-stone, and many sorts of coarse marble. The *Lapis Ollaris* is found here in abundance, and of great use to the natives for making of pots. Talc is frequent here,

* *Purchas*, iii. 848.

† See it well engraven in *M. Du Hamel, Hist. de Poissons*, part ii.

tab. xxvi.

‡ *Davis's Voy. in Hackluyt*, iii. 101.

§ Same, 114.

Asbestos,

Asbestos, and Gypsum. Granates are not uncommon. Sulphureous Marcasites which have more than once deceived the navigators with the opinion of their being gold *. The mineral symptoms of copper, such as stains of blue and green, are seen on these rocks ; but avarice itself will never tempt adventurers to make here a trial.

DAVIS got as high as lat. 72, and called the country *London Coast*. The streight he passed, between the west of *Greenland* and the great islands, is honored by his name. He seems to have been engaged among the great islands ; for he says he sailed sixty leagues up a sound, found the sea of the same color with the main sea, and saw several Whales. He sailed through another sound to the south-west, found ninety fathom water at the entrance ; but within could not touch ground with three hundred and thirty. He had hopes of having found the long-sought-for passage. The tides rose six or seven fathoms ; but, as is frequent among islands, the flood came from such variety of places, that he could not trace its principal origin †.

BAFFIN'S BAY.

At lat. 72. 30, I must take as my pilot that great seaman *William Baffin*, who gave name to the great bay I now enter on. His first voyage was in 1613 ; his second, in which he made the most effectual trial for the north-west passage, was in 1616. He passed through *Davis's Streights*. In lat. 70. 20, on the *London Coast*, he found the tides rise only eight or nine feet. In *Horn Sound*, lat. 73. 45, he met with several people ‡. To the north of that, in 75. 40, was a large and open bay ; *Cape Dudley Digges* forms its northern point ; within is *Westenholme Sound* ; beyond that, *Whale Sound* ; and in the extreme north, or bottom of this great bay, is that named by *Baffin* after *Sir Thomas Smith*, lying in 78 degrees. In those three sounds were abundance of Whales ; but in the last the largest in all this bay. It is highly probable, that there are one or more communications from hence to the *Icy Sea*, through which the Whales pass at certain seasons ; and this (if I may collect from their numbers) might be that of their migration southward. The distance into the *Icy Sea* can be but very small, but probably blocked up with ice ; or if not, from the sudden shifting of the ice in that sea by the change of wind, the passage must be attended with too great hazard to be attempted. The ice prevented our great seaman from making trial of the tides in this bay, which would have brought the matter to greater certainty. He saw multitudes of *Walruses* and *Seals* in these parts, but no signs of inhabitants. From hence the land trended westerly,

* Purchas, iii. 333.—Egede, 32.

† Hackluyt, iii. 102.

‡ Same, 346.

to a sound he called by the name of *Alderman Jones*, in lat. 76. 40. Here the land ran due south to a great sound in lat. 74. 20, which he called *Sir James Lancaster's*. From this place the land took an eastern curvature, to the freights between the continent and *Cumberland* island. *Baffin* took his course between that isle and the isle of *Saint James*, left his name to the freight he passed, and arrived safe in *Cockin's Sound*, on the coast of *West Greenland*, where he found the tide rise eighteen feet: this, and similar excesses, arising from the confined situation of places*.

This is the only voyage ever made into *Baffin's Bay*. *Christian IV.* of *Denmark*, in 1619, sent *John Munck*, a most able seaman, to make discoveries in these parts; but, notwithstanding any surmises of his having reached this famous bay, he got no farther than *Hudson's Bay*; to which, in honor of his master, he gave the name of *Christian Sea*. He passed a miserable winter in *Churchill* river, and returned home the next year, after losing, during his stay on shore, every man but two †.

Before I quit these frozen regions, I must once more return to *Spitzbergen*, to relate, what has but very lately been communicated to me, that the *Russians* have of late attempted to colonize these dreadful islands. They have, for a few years past, sent parties to continue there the whole year; who have established settlements on the isle of *Spitzbergen*, at *Croon Bay*, *King's Bay*, *Magdalena Bay*, *Smee-renburgh*, and *Green Harbour*; where they have built huts, each of which is occupied by about two boats crews, or twenty-six men. They bring with them salted fish, rye-flour, and the serum or whey of sour milk. The whey is their chief beverage, and is also used in baking their bread. Each hut has an oven, which serves also as a stove; and their fuel is wood, which they bring with them from *Archangel*. The huts are above ground, and most surprizingly warm; placed also in situations which may guard them as much as possible from the keenness of the northern wind.

Mr. Erskine Tonnach, surgeon of *Dunbar* (who, by the friendship of the worthy *Mr. George Paton*, of *Edinburgh*, favored me with this account) gives me the following particulars from his own knowledge.—“During our stay on the island, my curiosity prompted me to go on shore, that I might see the oeconomy of these arctic settlers; and had an opportunity of seeing them dine: and though their fare appeared coarse, the dispatch they use, said a great deal for their health and

* For the account of this curious voyage, see *Purchas*, iii. from p. 836 to 848.

† Clerk of the *California's Voy.* i. 106.—For a further account of this unfortunate voyage, see *Churchill's Collection*, ii. 472.

appetite. They boil their fish with water and rye-meal : and this constitutes their diet during winter. In the summer they live chiefly on fowls, or their eggs; but in general they forbear flesh, as the fasts prescribed by their religion are so numerous. They are dressed in the skins of the animals they kill, which they use with the fur side next to their bodies : their bedding is likewise composed of skins, chiefly of those of the Bear or Rein Deer. The skin of the Fox is the most valuable; but these are preserved as articles of commerce in their own country. They catch the Beluga, or white Whale, in nets, being conversant in this species of fishery; but are ignorant of that of the great Whale. They were very solicitous to get information on that subject; which I endeavoured to instruct them in, in return for the information they so readily gave me. They are most excellent marksmen; but, what is peculiar, in presenting their piece, they do not raise it to their shoulder, but place the butt-end between their arm and their side, fixing their eye on the object toward which they direct the barrel. I saw a Bear receive a considerable shot : it astonished me greatly to see the animal apply great quantities of snow to the part (which was bleeding freely) as if conscious of its styptic powers. It retreated with much slowness; but at short intervals looked behind, and, with much art, threw abundance of snow with its hind-paws into the wound. Few of the *Russians* die from the severity of the cold, but are often frost-bitten, so as to lose their toes or fingers; for they are so hardy as to hunt in all weathers. I naturally asked them, Had they a surgeon? They replied, 'No! no! CHRIST is our doctor!' They quit the island in *September*, and are privileged to leave the place by the 22d of that month, whether they are relieved by a fresh party from *Russia* or not."—Let me remark, that the great exercise used by these volunteer adventurers; their quantity of vegetable food; their freshening their salt provision, by boiling it in water, and mixing it with flour; their beverage of whey; and their total abstinence from spirituous liquors—are the happy preservatives from the scurvy, which brought all the preceding adventurers, who perished, to their miserable end*.

HUDSON'S BAY.

We now proceed through a nameless streight, between the main land and the two great islands on the east; and, after doubling *Cape Southampton*, enter into *Hudson's Bay*, in the gulph called *the Welcome*. This bay was discovered in 1610, by that able seaman *Henry Hudson*, from whom it takes its name. His view, in the voyage he made, was the discovery of a passage to the *East Indies*. The

* See this subject amply treated by Doctor *Aikin*, in a Treatise on the success, with respect to the health, of some attempts to pass the winter in high northern latitudes.

trial has been vigorously pursued since his days, but without success. In 1742 an attempt was made, as low as the bottom of *the Welcome*, by Captain *Middleton*; and from the check he met with, he called that part *Repulse Bay*. In subsequent trials *Wager's Water* was suspected to be the passage into the Western ocean; but in 1747 its end was discovered, and found to terminate in two navigable rivers. The romantic scenery which the adventurers met with in the way is most admirably described by the elegant pen of Mr. *Henry Ellis*.

Chesterfield, or *Bowden's Inlet*, was likewise suspected to have been the desired freight; but in 1762 Messrs. *Norton* and *Christopher*, in a sloop and cutter belonging to the Company, went to the remotest end. At the distance of a hundred and twenty-eight miles from the mouth was scarcely any tide; thirty miles further it quite died away. The land here grew contracted into a very narrow passage. Here the adventurers entered with the cutter, and discovered that the end was in a magnificent fresh-water lake, to which was given the name of *Baker's*. The land was quite level, rich in grass, and abounding with Deer. They found the end quite innavigable, and to terminate in a small stream, with many shoals at its mouth, and three falls across it. After finding the water decrease to the depth of two feet, they returned fully satisfied with their voyage.

Hudson's Bay has been so frequently described, that I shall only give a general view of it and its adjacent parts. Its entrance from the ocean, after leaving to the north *Cape Farewell* and *Davis's Straights*, is between *Resolution* isles on the north, and *Button's* isles, on the *Labrador* coast, to the south, forming the eastern extremity of the straits distinguished by the name of its great discoverer. The coasts very high, rocky, and rugged at top; in places precipitous; but sometimes exhibit large beaches. The isles of *Salisbury*, *Nottingham*, and *Digges*, are also very lofty, and naked. The depth of water in the middle of the bay is a hundred and forty fathoms. From *Cape Churchill* to the south end of the bay are regular soundings; near the shore shallow, with muddy or sandy bottom. To the north of *Churchill*, the soundings are irregular, the bottom rocky, and in some parts the rocks appear above the surface at low water. From *Moose* river, or the bottom of the bay, to *Cape Churchill*, the land is flat, marshy, and wooded with Pines, Birch, Larch, and Willows. From *Cape Churchill* to *Wager's Water* the coasts are all high and rocky to the very sea, and woodless, except the mouths of *Pockerekesko*, and *Seal* rivers. The hills on their back are naked, nor are there any trees for a great distance inland.

The mouths of all the rivers are filled with shoals, except that of *Churchill*, in which the largest ships may lie; but ten miles higher, the channel is obstructed with sand-banks; and all the rivers, as far as has been navigated, are full of rapids

b b

and

CHESTERFIELD
INLET.

and cataracts, from ten to sixty feet perpendicular. Down these rivers the *Indian* traders find a quick passage; but their return is a labor of many months.

As far inland as the Company have settlements, which is six hundred miles to the west, at a place called *Hudson House*, lat. 53. long. 106. 27, from *London*, is flat country: nor is it known how far to the eastward the great chain, seen by our navigators from the *Pacific Ocean*, branches off.

CLIMATE.

The climate, even about *Haye's* river, in only lat. 57, is, during winter, excessively cold. The snows begin to fall in *October*, and continue falling by intervals the whole winter; and, when the frost is most rigorous, in form of the finest sand. The ice on the rivers is eight feet thick. Port wine freezes into a solid mass; brandy coagulates. The very breath fell on the blankets of the beds in form of a hoar frost, and the bed-cloaths often were found frozen to the wall*. The sun rises, in the shortest day, at five minutes past nine, and sets five minutes before three. In the longest day the sun rises at three, and sets about nine. The ice begins to disappear in *May*, and hot weather commences about the middle of *June*; which, at times, is so violent, as to scorch the face of the hunters. Thunder is not frequent, but very violent. But there must be great difference of heat and cold in this vast extent, which reaches from lat. 50. 40, to lat. 63, north.

During winter the firmament is not without its beauties. Mock suns and halôs are not infrequent; are very bright, and richly tinged with all the colors of the rainbow. The sun rises and sets with a large cone of yellowish light. The night is enlivened with the *Aurora Borealis*, which spreads a thousand different lights and colors over the whole concave of the sky, not to be defaced even by the splendor of the full moon; and the stars are of a fiery redness†.

FISH.

Hudson's Bay is very ill supplied with Fish. The common Whale is frequent there. The Company have attempted to establish a fishery; and for that purpose procured experienced people from the *Spitzbergen* ships, and made considerable trials between lat. 61 and 69; but, after expending twenty thousand pounds, and taking only three fish, were, in 1771, obliged to desist. The ice prevented the vessels from getting to a proper station in due time; and the hard gales, and quick return of winter, always deprived them of an opportunity of making a fair trial. The fishery of the *Beluga*, or White Whale, is attended with more success. It haunts the mouths of rivers in *June*, as soon as they have discharged the ice, and are taken in great numbers. There are two varieties; one with a blue cast, the other of a pure white. These animals, probably, superfete; a

* *Voy. to Hudson's Bay*, 1746, written by the Clerk of the *California*, i. 159. His name was *Drage*; his account is sensible and entertaining.

† *Ellis*, 172.

fœtus of six inches in length having been extracted, at the same time that a young one has been seen (as is their custom) mounted on the back of another.

Sturgeons of a small size are found in the rivers, not far from the sea. They appear to me to be of the same species with the *English*. Sturgeons are found in great plenty in the lakes far inland, and from the weight of six to forty pounds. I suspect these to be the same with the Sturgeons of the great lakes of *Canada*, which, I am told, are smooth, or free from tubercles; and probably the *Acipenser Huso* of *Linnaeus*, and *Hansen* of the *Germans*, a fish of the *Danube* and *Volga*.

The *Lophius Piscatorius*, or Common Angler, *Br. Zool.* iii. N° 51, appears towards the surface only in windy weather; for which reason it is called by the natives *Thutina-meg*, or the *Wind-fish*.

The *Gadus Lota*, or Burbot, *Br. Zool.* ii. N° 86, is common in the rivers, and is caught with hooks after nine o'clock at night. It is called here *Marthy*; grows to the weight of eight pounds; is so voracious as to feed even on the tyrant Pike; will devour dead Deer, or any carrion, and even swallow stones to fill its stomach: one of a pound weight has been taken out of a fish of this species. It spawns about *February* 8th, and is unhappily most prolific. Mr. *Hutchins* counted, in a single fish, 671,248 ovaria.

Allied to this is the *Mathemeg* of the natives, the Land Cod of the *English*, a fish abundant in the northernly lakes; it grows to the length of three feet, and the weight of twelve pounds: has three beards on the lower jaw; the middlemost the longest: the back is brownish: the belly grey.

The *Perca Fluviatilis*, or common Perch, *Br. Zool.* iii. N° 124, is found in the rivers, but not in plenty; and sometimes grows to the weight of eight pounds. The *Gasterosteus aculeatus*, or three-spined Stickleback, *Br. Zool.* iii. N° 129, is found here in great numbers.

Salmo Salar, or the common Salmon, *Br. Zool.* iii. N° 143, is taken in plenty from *June* to *August*, in nets placed along the sea-shores, and salted for use. Very few are caught to the south of *Cburchill* river.

The *Namaycush*, is a species of Trout, with the head, back, dorsal fin, and tail of a dark blue: the sides dusky, marked with white and reddish spots: the belly silvery: the flesh white, and very delicate. It is caught with the hook in lakes far inland; and sometimes of the weight of thirty pounds. A *Trutta lacustris* generis, p. 1012. *Wil. Ich.* 198.

Salmo Alpinus, or Char, *Br. Zool.* iii. N° 149, is common in the fresh waters, and weighs from two to six pounds.

The *Salmo Lavaretus*, or Gwiniad, *Br. Zool.* iii. N° 152, is found here in vast abundance; and grows to a size far superior to those of *Europe*. There is a lesser

kind, called here the *Sea Gwiniad*: the head is not so dusky: eyes smaller; and back less arched. The nose of the male is blunt; and the stomach muscular, like a gizzard: the female has an arched nose. They are very numerous in autumn, just when the rivers are frozen over, and are called here *Tickomeg*. The *Salmo Arcticus*, or *Capelin*, is observed to precede the Salmon, and is sometimes thrown on shore in amazing quantities by hard gales.

The *Omisco Maycus* is a new species of Trout, taken in *May* in *Albany* river, not exceeding four inches and a half long. It has five branchiostegous rays: first dorsal fin has eleven rays, ventral eight, anal seven, pectoral thirteen: tail forked: in the jaws are minute teeth: back, as low as the lateral line, is of a pale color, marked with two longitudinal rows of black stelliform spots: below the lateral line the color silvery: the belly white.

The Pike, *Br. Zool.* iii. N° 153, abounds in all the lakes. It by no means arrives at the size of the *English*. Mr. *Hutchins* does not recollect any above the weight of twelve pounds.

The *Cyprinus Catastomus* of Dr. *Forster* *, or Sucker Carp, is a new species: of which there are two varieties; the *Mitico-Mapeth* of the *Indians*, marked with a broad stripe of red along the lateral line, and found on the sea-coast; and the White, or *Namapeth*, with larger scales, and wholly of a whitish color: very scarce in the salt-water, but in such plenty in the inland lakes and rivers, as to be even burdensome to the nets. They grow to the weight of two pounds and a half. The form is oblong: the head boney, rugged, and decreasing to the tip of the nose: the mouth small, and placed beneath: the body scaly: the tail lunated.

Shell-fish are very scarce in this sea. *Mytilus Edulis*, the Edible Mussel, *Br. Zool.* iv. N° 73, alone are plentiful; but of Cockles, only the dead shells are seen. From the number of shells which are dug up, for the space of ten miles inland of this flat muddy country, may be collected a proof of the great retreat of the water; but for want of inhabitants, the period of its loss cannot be ascertained.

BIRDS.

Among the birds, which escaped my notice while I was writing the zoologic part of this Work, are two of the Eagle kind, found in this country: the first is the YELLOW-HEADED, with a dusky bill, cere, and irides: head and neck yellowish: back dark brown; each feather tipped with dirty yellow. This species appears in *Hudson's Bay* in *April*. Builds its nest in trees, with sticks and grass; and

* By whom it is well described and figured, in vol. lxxiii. p. 155. tab. vi. of *Ph. Transf.*

lays one egg. It preys on young Deer, Rabbits, and Fowls. Retires southward in *October*. Is called by the *Indians*, *Ethenesue Mikesue* †.

A variety of the *GOLDEN EAGLE* is also a native of the same place. The forehead is brown : crown and hind part of the neck striped with brown, white, and rusty yellow : lower part of the neck, breast, and belly, deep brown : coverts of the wings, back, secondaries, and scapulars, of the same color ; the two last white towards their bottoms, and mottled with brown : primaries black : middle feathers of the tail brown, barred with two or three cinereous bands ; exterior feathers brown, blotched with cinereous : legs clothed with pale brown feathers to the toes, which are yellow. Length three feet. A specimen of this was presented to the *British Museum*.

To these may be added a genuine Falcon, communicated to me by Mr. *Latham*. The bill very sharp, and furnished with a large and pointed process in the upper mandible : cere yellowish : head, front of the neck, breast, and belly, white : each feather marked along the shaft with a line of brown, narrowest on the head : the back and coverts of the wings of a dirty bluish ash-color ; the edges of the feathers whitish, and many of them tipped with the same : primaries dusky ; exterior webs blotched with white ; interior barred with the same color : tail of the same color with the back, barred with white ; but the bars do not reach the shaft, and, like those in the *Iceland Falcon*, oppose the dark bars in the adverse web : the legs bluish. The length of this fine species is two feet two inches.

Multitudes of birds retire to this remote country, to *Labrador*, and *Newfoundland*, from places most remotely south, perhaps from the *Antilles* ; and some even of the most delicate little species. Most of them, with numbers of aquatic fowls, are seen returning southward, with their young broods, to more favorable climates. The savages, in some respects, regulate their months by the appearance of birds ; and have their *Goose month* from the vernal appearance of Geese from the south. All the Grouse kind, Ravens, cinereous Crows, Titmouse, and *Lapland Finch*, brave the severest winter ; and several of the Falcons and Owls seek shelter in the woods. The Rein Deer pass in vast herds towards the north, in *October*, seeking the extreme cold. The male Polar Bears rove out at sea, on the floating ice, most of the winter, and till *June* : the females lie concealed in the woods, or beneath the banks of rivers, till *March*, when they come abroad with their twin cubs, and bend their course to the sea in search of their consorts. Several are killed in their passage ; and those which are wounded shew vast fury, roar hideously, and bite and throw up into the air even their own progeny. The females and the young, when not interrupted, continue their way to sea. In *June*, the

† The description and history of this species was communicated to me by Mr. *Hutchins*.

males

TERRA DE LABRADOR.

males return to shore, and, by *August*, are joined by their consorts, with the cubs, by that time of a considerable size*.

The eastern boundary of the bay is *Terra de Labrador*; the northern part has a strait coast facing the bay, guarded with a line of isles innumerable. A vast bay, called the *Archiwinnipy Sea*, lies within it, and opens into *Hudson's Bay* by means of *Gulph Hazard*, through which the *Beluga Whales* dart in great numbers. Here the Company had a settlement, for the sake of the fishery, and for trading with the *Eskimaux*; but deserted it as unprofitable about the year 1758 or 1759. The eastern coast, so admirably described by that honored name, Sir ROGER CURTIS†! is barren past the efforts of cultivation. The surface every where uneven, and covered with masses of stone of an amazing size. It is a country of fruitless vallies and frightful mountains, some of an astonishing height: the first watered by a chain of lakes, formed not from springs but rain and snow, so chilly as to be productive of only a few small Trout. The mountains have here and there a blighted shrub, or a little moss. The vallies are full of crooked stunted trees, Pines, Fir, Birch, and Cedars, or rather a species of Juniper. In lat. 60, on this coast, vegetation ceases. The whole shore, like that on the west, is faced with islands at some distance from land. The inhabitants among the mountains are *Indians*; along the coasts, *Eskimaux*. The Dogs of the former are very small; of the latter, large, and headed like a Fox. Notwithstanding they have Rein-deer, they never train them for the sledge; but apply the Dogs to that use‡. *Walruses* visit a place called *Nuchvunk*, in lat. 60, during winter; from thence they purchase the teeth, with which they head their darts. *Davis* suspected that he had found a passage on this coast, in 1586, to the Western ocean; but it proves no more than a deep bay.

The laudable zeal of the *Moravian* clergy hath induced them to send, in the year 1752, missionaries from *Greenland* to this country. They fixed on *Nisbet's* harbour for their settlement; but the first party was partly killed, partly driven away. In 1764, under the protection of our government, another attempt was made. The missionaries were well received by the *Eskimaux*, and the mission goes on with success||. These pious people, like the *Jesuits*, have penetrated almost into every part of the known world; and, for the sake of the Gospel, dared the extremities of heat and cold. They endeavour to humanize the savages of *Greenland*, and improve the morals of the soft inhabitants of the unwholesome coasts of *Bengal*. They are not actuated by ambition, political views, or ava-

* See an ingenious and laudable Calendar of *Hudson's Bay*, published by Doctor *Macfart*, in his new System of General Geography, 348 to 354. † *Pb. Trans.* lxiv. 372. ‡ Same, 386.

|| *Cranz, Hist. Morav.* 404, 608.

rice. Here my comparison with the once-potent order of the *Roman church* fails.

Terra de Labrador, at *Cape Charles*, in lat. 52, trends towards the south-west. Between that cape and the isle of *Newfoundland* begin the straits of *Belleisle*, a passage with from twenty to thirty fathoms water; but often choaked up with the floating ice from the north, even so late as the middle of *June* *. They open into the vast triangular gulph of *St. Laurence*, bounded to the north by *Terra de Labrador*; to the west by *Nova Scotia*; to the east by *Cape Breton* and *Newfoundland*. In the western corner, the vast river of *St. Laurence* discharges itself; arising from a thousand streams which feed the sea-like lakes of *Canada*, and, after falling down the amazing cataract of *Niagara*, and darting down the slopes of numberless foaming rapids, tremendous to all but *British* battalions †, forms a matchless navigation of many hundred miles. *Jacques Cartier*, a native of *St. Maloes*, had, in 1534, the honor of being the first discoverer of this noble river.

In the gulph are scattered several important islands, occupied by the *English* and *French* for the sake of the fisheries. The small rocky isles of *St. Magdalene* are still frequented by numbers of *Walruses*. There is an annual chase during the season, and numbers are killed for the sake of the oil and skins ‡. The water round the *Magdalenes* is only from three to nine fathoms deep, and the shores slope most conveniently into it for the ascent or descent of these animals. The water round the other isles is of one depth, except on the north side of *St. John's*.

Newfoundland (a name, in the infancy of discovery, common to all *North America*) was discovered in 1496, by the celebrated *Venetians*, *Sebastian Cabot* and his three sons; who, at their own charges, under a grant of *Henry VII.* giving them possession (as vassals of his) of all lands they might discover §, coasted from lat. 67. 30, to the capes of *Florida*, and thus indisputably gave to ill-fated *Britain* the right, by pre-discovery, of the whole continent of *North America*. The short-sighted avaricious prince, under whose banners it was discovered, had not the heart to make the proper advantage. He had before neglected the offer of *Columbus*, which would have given him that species of right to the whole *New World*. 'But,' says the courtier-like *Bacon* ¶, 'it was not a refusal on the king's part, but a delay by accident, which put by so great an acquiescence.' The *French* soon found out the gold mine of the *Newfoundland* discovery, which offered itself in the fisheries. Of all minerals (twice says the same noble philosopher) there

MAGDALENE
ISLES.

* *Barrington's Miscel.* 25. † Read the account of Lord *Amherst's* descent down this river, in 1760.

‡ See p. 148. § *Rymer's Fœd.* ¶ *Hist. King Henry VII. Bacon's Works*, iii. 89.

is none like the fisheries. In 1534 they were actually engaged in them. A private man, Sir *Humphry Gilbert*, brother-in-law to *RALEIGH*, or, what was better, animated by a congenial soul, sailed in 1583 with every provision for settling this important colony. On his return he was swallowed up by the ocean. His love of improvement, and his piety, never forsook him. He was seen sitting unmoved in the stern of his ship, with a book in his hand; and often heard to say, 'Courage, my lads! we are as near heaven at sea as at land *.'

The isle of *Newfoundland* is of a triangular form, and lies between lat. 46. 40, and 51. 30: visited occasionally, but not inhabited, by savages from the continent.

The boasted mine of this island lies on the southern and western sides, on the great bank, which stretches from north-east to south-west, about two hundred leagues. The water on the bank is from twenty-two to fifty fathoms; on the outside from sixty to eighty; on the lesser banks much the same. A great swell and thick fog generally mark the place of the greater. The subject of the fishery has been often treated of; but the following short though clear account of so interesting a subject cannot fail being acceptable to the *British* reader.

NEWFOUNDLAND
FISHERY.

"The boats or shallops are forty feet in the keel, rigged with a mainmast and foremast, and lugails; furnished with four oars, three of which row on one side, and the other (which is twice as large) belays the other three, by being rowed sideways over the stern, by a man who stands up for that purpose, with his face towards the rowers, counteracting them, and steering at the same time as he gives way to the boat.

"Each of the men in this boat is furnished with two lines, one at each side of the boat, each furnished with two hooks; so here are sixteen hooks constantly employed; which are thought to make a tolerable good day's work of it, if they bring in from five to ten quintals of fish, though they have stowage for, and sometimes bring in thirty. Two hundred quintals is called a saving voyage; but not under. The bait is small fish of all kinds; Herring, Capelin, Lance, Tom Cod, or young Cod; the first of which they salt, and keep for some time, in case of scarcity of the rest; but these are not near so eagerly taken by the fish when salted. In case small fish cannot be got, they use sea-fowl, which are easily taken in vast numbers, by laying nets over the holes in the rocks where they come to roost in the night. If neither small fish nor birds are to be got, they are forced to use the maws of fish they catch, which is the worst bait of any.

"When the fish are taken, they are carried to the stage, which is built with one end over the water for the conveniency of throwing the offals into the sea, and

* *Hackluyt*, iii. 159.

for their boats being able to come close to discharge their fish. As soon as they come on the stage a boy hands them to the header, who stands at the side of a table next the water end; whose business it is to gut the fish and cut off the head, which he does by pressing the back of the head against the side of the table, which is made sharp for that purpose; when both head and guts fall through a hole in the floor into the water. He then shoves the fish to the splitter, who stands opposite to him; his business is to split the fish, beginning at the head, and opening it down to the tail; at the next cut he takes out the larger part of the backbone, which falls through the floor into the water. He then shoves the fish off the table, which drops into a kind of hand-barrow, which, as soon as filled, is carried off to the salt-pile. The header also flings the liver into a separate basket, for the making of train-oil, used by the curriers, which bears a higher price than Whale-oil.

"In the salt pile, the fish are spread upon one another, with a layer of salt between. Thus they remain till they have taken salt; and then are carried, and the salt is washed from them by throwing them off from shore in a kind of float called a *Pound*. As soon as this is completed, they are carried to the last operation, of drying them; which is done on standing flakes made by a slight wattle, just strong enough to support the men who lay on the fish, supported by poles, in some places as high as twenty feet from the ground: here they are exposed, with the open side to the sun; and every night, when it is bad weather, piled up five or six on a heap, with a large one, his back or skinny part uppermost, to be a shelter to the rest from rain, which hardly damages him through his skin, as he rests slanting each way to shoot it off. When they are tolerably dry, which in good weather is in a week's time, they are put in round piles of eight or ten quintals each, covering them on the top with bark. In these piles they remain three or four days to sweat; after which they are again spread, and when dry put into larger heaps, covered with canvas, and left till they are put on board.

"Thus prepared, they are sent to the *Mediterranean*, where they fetch a good price; but are not esteemed in *England*: for which place another kind of fish is prepared, called by them Mud Fish; which, instead of being split quite open, like their dry fish, are only opened down to the navel. They are salted, and lie in salt, which is washed out of them in the same manner with the others; but instead of being laid out to dry, are barrelled up in a pickle of salt boiled in water.

"The train-oil is made from the livers: it is called so to distinguish it from Whale or Seal oil, which they call fat oil, and is sold at a lower price (being only

used for lighting of lamps) than the train-oil, which is used by the carriers. It is thus made:—They take a half tub, and, boring a hole through the bottom, press hard down into it a layer of spruce boughs; upon which they place the livers, and expose the whole apparatus to as sunny a place as possible. As the livers corrupt the oil runs from them, and, straining itself clear through the spruce boughs, is caught in a vessel set under the hole in the tub's bottom.

CAPE BRETON.

The barren island of *Cape Breton* forms one side of the great entrance into the gulph of *St. Laurence*. It is high, rocky, and dreary: rich in thick beds of coal, and may prove the *Newcastle* of *America*. This isle was first discovered by *Sir Humphrey Gilbert*, in his fatal voyage. It was soon after frequented, on account of the *Walrus*es, and the fishery of *Whales*. Among the earliest adventurers were the industrious *Biscayeners*, who seem to have been our masters in the art. Till of late years, it had been important by being the seat of the *French* fishery; but the strong fortress of *Louisbourg* is now demolished, and the place deserted.

NOVA SCOTIA.

The great peninsula of *Nova Scotia* is separated from *Cape Breton* by a narrow strait. It was, in 1616, possessed by the *French*, who attempted to colonize it from their new settlement in *Canada*; but they were soon expelled by the *English*, who deemed it part of *North Virginia*; the whole continent, at that time, going under the name of *Virginia*, so called, originally, in honor of our virgin queen. The *French* had given it the name of *Acadie*. *James I.* made a grant of the country to *Sir William Alexander* in 1621, on condition that he would form there a settlement. It then received the title of *Nova Scotia*. In order to encourage *Sir William*, he planned the order of baronets, which is called after the country. To every knight who would engage to colonize any part, a grant was to be made of certain portions of land. The order was not instituted till 1625, when a number were created, and they held their lands from the crown of *Scotland* as a free barony, with great privileges to all who would settle in the country*. The design almost instantly failed, and the *French* were permitted to repossess themselves of the province. Its value became known, and since that period it has frequently changed masters. It never was effectually settled till the year 1749, when a large colony was sent there under the auspices of the Earl of *Halifax*.

CLIMATE.

The climate of this province is, during the long winter, extremely severe, and the country covered with snow many months: the summer misty and damp. The face of it is in general hilly; but can scarcely be called mountainous.

* *Collins's Baronets*, iv. 330.

tanous, being the lowered continuation of the great chain which pervades the whole continent. The ground is not favorable to agriculture, but may prove excellent for pasturage. Due attention to the breeding of cattle will not only repay the industry of the farmer, by the home consumption, but be an extensive benefit to our islands. The country cannot boast, amidst its vast forests, timber fit for large masts, nor yet for the building of large ships; yet it will prove an inexhaustible magazine for that species of timber called lumber, so essential to our sugar plantations.

Its situation, in respect to the fisheries, is scarcely inferior to that of *Newfoundland*. The vast banks, called *Sable Island's*, *Brown's*, and *St. George's*, with many others, are frequented by myriads of Cod-fish. It is the duty of the Parent State to encourage, with all diligence, this branch of commerce; and in a manner so expeditious and so frugal, as may anticipate and undersell foreign adventurers. Without that, our remnants of the New World will be but of little use. The fisheries, the staples of *Nova Scotia* and *Newfoundland*, are open to other nations; and if they are permitted to excel us in the articles expedition and frugality, our labors are truly vain. It is to the antient hardy colonists we must look up for the support of the toils of the sea, and the advantages we may expect to gain from them: they should have their encouragement. But there is another set of men who of late (a public calamity) have made hither an involuntary migration, who with sad hearts recollect their exiled land:

ITS FISHERIES.

Nos Patriæ fines, nos dulcia linquimus arva.

Nos Patriam fugimus.

These sufferers are in general unused to the fatigues of a maritime life, and ought to be fostered, for their filial piety, at first, with a parental care; to be encouraged in the pastoral life, or in such arts as may supply the sailor and the fisherman with food, and with materials for their professions. If the climate is fit for corn, for flax and hemp, let due rewards be given for the successful efforts of their industry. The succeeding generation, hardened to the climate, and early habituated to another kind of life, may join the maritime adventurers, and give importance to themselves, and strength to the island from which they sprung.

The harbours of this province are frequent and excellent. The tides are in many places most uncommonly high. Those of the bay of *Fundy* are the most remarkable; for they force themselves into the great creeks with a bore or head

HARBOURS.

MAGNIFICENT
VIEWS.

from fifty to seventy-two feet high, and with most amazing rapidity. Hogs, which feed along the shores, are much more sensible of its approach than mankind: they are observed to listen, to prick up their ears for some time, and then suddenly to run off at full speed.

The coasts are, in general, rude and rocky, with some variations; but in many places exhibit most picturesque scenery. All the northern side is high, red, and rocky. The isles of *Canso* are varied with many low white rocks. From them to *Torbay* is a series of lofty coast, broken and white. *Beaver Harbour* is guarded by most picturesque rounded isles. South shore of *Chebueto* steep: the plaister cliffs in *George Bay* are remarkable for their precipitous face and whiteness. *Sable* or *Sand Island* is distinguished (as the name imports) by amazing sand-hills of a sugar-loaf form. The isle of *Great Manan*, on the western side of the entrance of the bay of *Fundy*, is very lofty, the strata divided, and the top wooded. *St. Mary's Bay* is nobly bounded by high rocks, cloathed on their summits with woods: the entrance into it are the *Grand* and *Petit Passage*; the sides of the last are either covered with hanging woods, sloping to the water-edge, or broke into short precipices. The entrance into the fine harbour of *Annapolis* is most august: a narrow gut, bounded by enormous precipices, with lofty hills soaring above, the tops of which are even and cloathed with woods. The approach to the basin of *Minas* is not less magnificent. The columnar rocks of *Cape Split* are very singular. The isle of *Haute* is lofty and steep on every side. The whole neighborhood abounds with views of the most sublime and romantic cast. This peninsula joins the great continent by a very narrow isthmus, beyond which we retain a wretched barren remnant of near half of the New World; the sad reverse of the short space of twenty years!—My eyes withdraw themselves from the mortifying sight. BRITAIN, which fate (by the wisdom of one man) as the Queen of Nations, now deplores her folly; and ought to confess, that 'those things which were for her wealth, proved to her 'an occasion of falling.' She sunk under the delusion of prosperity, by false security, and the pride of victories. If she makes a proper use of adversity, she still may rise into glory and wealth, by honest industry, and by the repression of rapacity and sordid ambition.—Once more, gracious Heaven, endeavour to save an ungrateful people! once more raise up some great instrument to execute thy mercies!—Pour with full measure into our youthful Minister the virtues of his father!—Emulate, young Man, his virtues, and then—

Si qua fata aspera rumpas;

Tu MARCELLUS eris.

I N D E X



TO THE
INTRODUCTION.

A.			Baltic sea, rather a gulph. Described			page		
ALPS of Great Britain, their course		XIX	by Tacitus	—	—	LIX		
Siberia	—	XCIV	its depth	—	—	ib.		
America	—	CXXXIX	no tides in	—	—	LX		
Alaska promontory	—	CLI	once joined to the White Sea	—	—	LXV		
Aland isles	—	LXII	very few fish in	—	—	LXII		
Archangel, its origin	—	XCII	Breton, Cape	—	—			
America, from whence peopled	—	CLX	Baikal, the greatest of lakes in the Old	—	—			
Arctic flats	—	XCIX	World	—	—	XCVII		
Antiquities British, in the Orknies and			Birds in Britain and France	—	—			
Shetland	—	XXXI	Orknies	—	—	XXVI		
in Scandinavia	—	XXXVI	Feroe Isles	—	—	XL		
Roman in Shetland	—	XXXIII	Iceland	—	—	LI		
Roman in Sconen, in Sweden	—	LIX	Scandinavia	—	—	LXXV		
Altaic chain or mountains, its course	—	XC	Spitzbergen	—	—	XC		
Arzina, where Sir Hugh Willoughby perished	—	LXXX	Greenland	—	—	CLXXXIII		
Alutian isles	—	CXXXV	about Prince William's Sound	—	—	CXLVIII		
Aurora Borealis, formerly supposed to be portentous	—	XXVIII	about Nootka Sound	—	—	CXLIII		
beautiful in Shetland	—	XXVII	Bristol Bay	—	—	CLIV		
most singular in Siberia	—	CII	BERING, Captain, account of	—	—	CX		
in Greenland	—	CLXXXI	Iceland	—	—	CXXXIII		
in Hudson's Bay	—	CXC	Streights	—	—	CXI		
B.			Birds omitted in the Zoological part	—	—	CXLVI		
Borve, an antient Scotch castle on a perforated rock	—	—	Biscayeners early in the whale-fishery	—	—			
			Baffin's Bay	—	—	CLXXXV		
			Baronets of Nova Scotia	—	—	CXCVIII		
			Bow of bone most curiously engraven by the Americans	—	—	CXLIV		
			Bear, black, error of mine concerning, corrected	—	—	CXX		
			white land	—	—	CXLVII		
			Polar, farther history of	—	—	CXCIII		
			C. Castum					

INDEX TO THE

C.

	page
<i>Castum Nemus</i> , the modern Heilgeland	LVII
rites celebrated there to	
to the goddesses <i>Hertka</i>	ib.
Camp, Roman? in one of the <i>Schettland</i>	
isles	XXXIII
<i>California</i>	CXXXVI
<i>Cimbrian</i> deluge, its consequences	LVIII
<i>Cimbrica Chersonesus</i>	ib.
<i>Cwen Sea</i> . See <i>White Sea</i> .	
<i>Cherie Island</i>	LXXX
Chain of mountains in <i>Asia</i>	XCIV
in <i>America</i>	CXXXIX
Cook, Captain	CXXXVIII
river	CL
Clerk, Captain, pursues Captain COOK's	
discoveries	
<i>Copper Isle</i>	CXXXIII
Customs common to the <i>Americans</i> and	
northern <i>Asiatics</i>	CLXI
Coals found in very high latitudes	LXXI, C
<i>Cabot</i> gave, by his discovery, an origi-	
nal to the <i>English</i> of <i>North America</i>	CKCV

D.

<i>Dover Straights</i> , not aboriginal	11
their depth	111
increase of soundings to east	
and west	ib.
Drift-wood, on the <i>Iceland</i> coast	XLIV
on the <i>Spitzbergen</i> and	
<i>Nova Zemjean</i>	LXXXI
in the <i>Icy Sea</i>	CLIX
in <i>Hudson's Bay</i>	LXXXV
from whence brought	LXXXI
from whence the manu-	
factured pieces	ib.
DRAKE, Sir Francis, his discovery of	
<i>New Albion</i>	CXXXVII

E.

Eagles, new species	CXLV11
<i>Eskimaux</i> , of the western side of <i>Ame-</i>	
<i>rica</i>	CXLIX, CLIII, CLV
massacre of, near <i>Copper Ri-</i>	
<i>ver</i>	CLXXV
of <i>Greenland</i>	CLXXXI
of <i>Labrador</i>	
<i>Egede</i> , Mr. the <i>Arctic</i> apostle	CLXXXIX

F.

	page
<i>Fofla</i> , a German deity, the same with	LVII
<i>Vesta</i>	ib.
<i>Flevo Lacus</i> , now lost in the <i>Zuyder-Zee</i>	LVI
<i>Flanders</i> , antient state of	ib.
<i>France</i> , once joined to <i>Britain</i>	II
correspondency of its coast and	
cliffs	ib.
its number of Quadrupeds and	
Birds	V, VI
<i>Feroe Isles</i> , their number	XXXIX
when discovered	XLII
Fowling, desperate method in <i>Feroe</i>	XL
in <i>Schettland</i>	XXIX
Fruits or Nuts of the <i>West Indies</i> , how	
wasted to <i>Norway</i> , &c.	LXIX
Fish of <i>Iceland</i> , mostly common to	
<i>Greenland</i>	ib.
of the <i>Baltic</i> , very few	LX
of <i>Lapland</i>	LXII
of <i>Norway</i>	LXXV
of <i>Spitzbergen</i>	XC
of the <i>Siberian</i> rivers	CII
the <i>Frozen Sea</i>	ib.
<i>Kamtschatka</i>	CXXH
<i>Greenland</i>	CLXXXIII
<i>Hudson's Bay</i>	CLXXXIX
<i>Fabricius</i> , Mr. Otto, a most able Zoologist	CLXXXI
Fleets, vast, of the northern nations	LXVII
Frost-smoke, its danger	CLXXXI
Fossils of <i>Greenland</i>	CLXXXV

G.

<i>Gouberman</i> , isles off <i>Iceland</i> , suddenly	
absorbed	XLVII
Gulph stream, an account of	LXIX
Guillemot, lesser (omitted at p. 517,	
Zool.)	LII
<i>Germanicus</i> doubles the <i>Cimbrium Pro-</i>	
<i>montorium</i>	LIX
<i>German Sea</i>	XX
<i>Gilbert</i> , Sir <i>Humphry</i> , his gallantry	
and piety	
<i>Greenland</i> , Old	CLXXVII
when first discovered	CLXXVIII
its antient colony of <i>Nor-</i>	
<i>wegians</i>	ib.
when again colonized	CLXXXIX

H. Holland,

INTRODUCTION.

H.

<i>Holland</i> , its antient state	page	LVI
<i>Hervor</i> , her magical invocation, a runic poem	xxxvii	
<i>Hecla</i> , number of its eruptions	xlvi	
the northern hell	ib.	
<i>Huurs</i> , or jets-d'eau of scalding water in Iceland	xlvi	
<i>Hoy</i> , hill of, in <i>Orkney</i> , its height	xxv	
<i>Hyperborean</i> , or northern ocean	xlvi	
<i>Hyperboreans</i> , a people described by <i>P. Mela</i>	xciv	
Herrings extend to <i>Kamtschatka</i>	cxvii	
<i>Hearne</i> , Mr. his amazing journey to the <i>Icy Sea</i>	clxxv	
<i>Hippopoda</i> , what, probably	lxiv	
<i>Hilleviones</i> , a people of <i>Sweden</i>	lxv	
<i>Hudson's Bay</i>	clxxxvii	

I.

<i>Iceland</i> , its discovery	xlvi	
almost a mass of lava	xlvi	
its plants	xlvi	
dreadful eruptions in	xlvi	
enslaved state	xlvi	
antient commerce from <i>Britain</i>	liv	
wonderful jets-d'eau	xlvi	
Quadrupeds and Birds	xlvi	
Islands newly raised out of the sea	xlvi	
swallowed up in the sea	xlvi	
of ice, their amazing extent	lxxxvi	
<i>Icebergs</i> (or <i>Fokkeler</i>) of <i>Iceland</i>	xlvi	
of <i>Spitzbergen</i>	lxxxv	
<i>Icy Sea</i>	clvii	
attempts to pass it	c	
very shallow	clviii	
its time of freezing	c	
<i>Jenesei</i> river	xcvii	

K.

<i>Kara Sea</i>	xcvi	
<i>Kandinos</i> Island	xcvii	
<i>Kattegate</i> , the	lviii	
<i>Kivikke</i> in <i>Sweden</i> , Roman antiquities there	lxxxviii	
<i>Kamtschatka</i>	cxii	
severe climate	cxiii	
plants of	cxiv	
marine plants	cxviii	
religion	cxix	
former beastly hospitality	cxix	

<i>Kuril Isles</i>	page	cxix
<i>Koriaks</i> , people	cxix	

L.

<i>Labrador</i>		
<i>Lena</i> , the river		xcix

M.

Mountains, <i>Scottish</i> , their height	xix	
<i>Scandinavian</i>	lxix, lxxiii	
of <i>Spitzbergen</i>	lxxxvii	
of <i>Siberia</i>	xciv	
<i>Magdalene Isles</i> , a great haunt of the Walrus	cxci	
<i>Mangazea</i> , a most antient Arctic mart	xcviii	
<i>Mednoi</i> , or <i>Copper Isle</i>	cxix	
<i>Montrose</i> pits, singular excavations in a sand-bank	xxi	
<i>Mare</i> , <i>Scythicum</i> vel <i>Samarticum</i>	lxiv	
<i>Pigrum</i>	ib.	
<i>Septentrionale</i>	xx	
<i>Morimarusa</i>	lxiv	
<i>Gbronium</i>	ib.	
<i>Suevicum</i>	lviii	
<i>Moravian</i> clergy, their meritorious zeal	cxci	
<i>Markoff</i> , his journey on the ice of the <i>Icy Sea</i>	c	
<i>Moucho More</i> , a mushroom, its dreadful effects	cxvii	

N.

<i>Nortmans</i> , their ravages	lxvii	
<i>North Cape</i>	lxxx	
<i>North Sea</i> . See <i>German</i> .		
<i>Nova Zemlja</i> , uninhabited	xcvi	
Naturalists employed by the EMPRESS of RUSSIA, their great merit	cxiv	
<i>Norway</i>	lxvi	
its vast extent, and singular coasts	lxvii, lxviii	
<i>Norwegians</i> , a fine race of men said to have discovered America	clxiv	
<i>Nootka Sound</i>	cxlii	
natives of, their feathers	cxlii	
<i>Newfoundland</i>	cxvi	
fishery	ib.	
<i>Nova Scotia</i>	cxviii	
romantic views in	cc	

O. Ogher

INDEX TO THE

O.

<i>Ofther</i> or <i>Obthere</i> , the Norwegian, a	page
most able voyager	LXXVII
<i>Oonalasbka</i> Island	CLIII
<i>Ob</i> , the river	xcvi
its annual stench	xcvii

P.

<i>Peczora</i> , once a place of great trade	xciii
Packing of the ice, what	LXXXIII, LXXXV
<i>Panoti</i> , a fabulous people	LXIV
<i>Pylbeas</i> of <i>Marseilles</i> , a most antient voyager	XLII
<i>Prior</i> , his beautiful fiction of the Arctic life	civ
Plants. See Vegetables.	
<i>Prince William's Sound</i>	cxlvii
<i>Port los Remedios</i> , the most northern discovery of the Spaniards	cxlv

Q.

Quadrupeds of Britain and France	iv, v
of the Orknies and Schetland	xxx
of Iceland	xliv
of Scandinavia	LXXIV
of Spitzbergen	LXXXVII
of Kamtschatka	cxvi
of Greenland	clxxxii
Table of	clxviii

R.

Russian empire, its vast extent	LXIII
Roman fleet sail to the mouth of the Baltic	LIX
<i>Ripraps</i> , a submarine hill, once part of the isthmus between France and Britain	iii
Raven, sacred to <i>Odin</i>	LII
used by <i>Floke</i> , the pirate, to discover land	xliv
Riphean hills	xciv
<i>Rublas Promontorium</i>	LXVI
Russians regularly winter in <i>Spitzbergen</i>	clxxxvii

S.

<i>Saxonum Insulae</i>	LVII
<i>Siberia</i> , its discovery	cv
intense cold of	cii
Salmon species very numerous in <i>Kamtschatka</i>	cxviii

<i>Saranne</i> , the most useful plant of <i>Kamtschatka</i>	page CXVIII
<i>Schalourof</i> , his discoveries	ci
<i>Schalotskoi Cape</i> , its latitude erroneous probably never doubled	ci, cix
Springs, hot in Iceland	xlvi
in <i>Kamtschatka</i>	cxiii
in Greenland	
<i>Seven Sisters Isles</i> , the most remote of known land	LXXXIII
<i>Seven Sisters</i> in Norway, most singular mountains	LXXII
Seal little (omitted in its place)	LXXIV
Streights of <i>Dover</i> affected by the ocean between the gulph of Finland and <i>White Sea</i> , now closed, but still to be traced	lxv, xcvi
<i>Samoieds</i>	xciii
Scalping in use with the <i>Scythians</i>	clxi
<i>Scandinavia</i> , once insulated	lxv
the <i>Officina Gentium</i>	LXVII
ravage, yet assist to people much of Europe	ib.
Sand banks, off Britain, their utility which dangerous	xii, xxi
off Flanders and Holland	lv
<i>Sewo Mons</i> , <i>Seweberg</i>	LXXII
Sweet Plant, the, its great use in <i>Kamtschatka</i>	cxvii
<i>Spitzbergen</i>	LXXXI
instances of people wintering there	xc, clxxxvii

T.

Tides, height of, in the streights of <i>Dover</i>	iii
at <i>Calais</i> , and the coasts of Flanders and Holland	lv
on the coast of <i>Futland</i>	ib.
of Norway	LXVIII
of the Frozen Sea	
<i>Kamtschatka</i>	cxviii
western coast of America	cli, cxlii
Table of Quadrupeds	clxviii
<i>Taimura Cape</i>	ci
<i>Torg-batten</i> , a singular pierced rock	LXXII
<i>Tomabaruk</i> , a most tremendous	cxliv
<i>Thomson</i> , the poet, his real representation of Arctic life	cv
<i>Tschutski</i> , last of Asiatic people	cviii
Tartarian idol, figure of, illustrating a passage in <i>Herodotus</i>	clxi

U. Urallian

INTRODUCTION.

U.

Uralian chain or mountains, its course	page XCIV
Vulcanoes of Iceland	XLV
chain of in South and North America	CXXXIX
in Kamtschatka	CXII
in the isles of Asia to North America	CXXXIV, V
Vegetables, numbers in Iceland	XLV
of Spitzbergen	LXXXVIII
comparative list of those of northern Europe	LXXXIX
of Sibiria	CVII
of Kamtschatka	CXIV
of the western side of America	CXLVI
of Bering's Isle	CXXXIV

W.

Westra, graves of in Schetland, their contents	XXXV
Westmory in Iceland, antiently a royal port	LIV

Whirlpools between Cathness and the Orknies	page XXIII, XXIV
of Suderoe, near the Feroe Isles	XLII
Willoughby, Sir Hugh, his discoveries and sad fate	LXXX
Waygat streights, Spitzbergen	LXXXI
the Nova Zemljean	XCVI
Wardhuys, the most northern fortress	LXXXIX
Walrules, where abundant	LXXXI, XCVI
Werchoturian mountains. See Uralian.	
White Sea, early discovered	LXXVII, XCII
Welsb, their clame to the discovery of America	CLXIII
William's, Prince, Sound	CXLVII

Y.

Yaik river, its course	XCIV
Yermac, a Cossac, first conquers part of Sibiria for the Russians	CV

Z.

Zuyder Zee, when formed	LVI
-------------------------	-----



ARCTIC ZOOLOGY.

CLASS I. QUADRUPEDS.

DIV. I. HOOFE D.

HIST. QUAD. GENUS II.

American Ox, *Hist. Quad.* p. 19. H.—*Smellie*, vi. 198.

I. OX.

I. BISON.

OX. With short, black, rounded horns; with a great space between their bases: on the shoulders a vast bunch, composed of a fleshy substance, much elevated: the fore part of the body thick and strong: the hind part slender and weak: tail a foot long, naked to the end, which is tufted: the legs short and thick.

The head and shoulders of the BULL are covered with very long flocks of reddish woolly hair, falling over the eyes and horns, leaving only the points of the latter to be seen: on the chin, and along the dewlaps, is a great length of shaggy hairs: the rest of the body during summer is naked, in winter is cloathed equally in all parts. The Cow is lesser, and wants the shaggy coat, which gives the Bull so tremendous an aspect.

It grows to a great size, even to the weight of sixteen hundred or two thousand four hundred pounds*. The strongest man cannot lift the hide of one of these animals from the ground†.

SIZE.

* *Lawson*, 116.

† *Catesby* ii. App.

B

The

The *Bison* and *Aurochs* of *Europe* is certainly the same species with this; the difference consists in the former being less shaggy, and the hair neither so soft nor woolly, nor the hind parts so weak. Both *European* and *American* kinds scent of musk.

WHERE
ANTIEN-
TLY
FOUND.

In antient times they were found in different parts of the old world, but went under different names; the *Bonafus* of *Aristotle*, the *Urus* of *Cæsar*, the *Bos ferus* of *Strabo*, the *Bison* of *Pliny*, and the *Biston* of *Oppian*, so called from its being found among the *Bistones*, a people of *Thrace*. According to these authorities, it was found in their days in *Media* and in *Pæonia*, a province of *Macedonia*; among the *Alps*, and in the great *Hercynian* forest, which extended from *Germany* even into *Sarmatia* *. In later days a white species was a native of the *Scottish* mountains; it is now extinct in its savage state, but the offspring, sufficiently wild, is still to be seen in the parks of *Drumlanrig*, in the South of *Scotland*, and of *Chillingham* Castle in *Northumberland* †.

WHERE AT
PRESENT.

EUROPE.

ASIA.

In these times it is found in very few places in a state of nature; it is, as far as we know, an inhabitant at present only of the forests of *Lithuania*, and among the *Carpathian* mountains, within the extent of the great *Hercynian* wood ‡, its antient haunts; and in *Asia*, among the vast mountains of *Caucasus*.

It is difficult to say in what manner these animals migrated originally from the old to the new world; it is most likely it was from the north of *Asia*, which in very antient times might have been stocked with them to its most extreme parts, notwithstanding they are now extinct. At that period there is a probability that the old and the new continents might have been united in the narrow channel between *Tchutki nofs* and the opposite headlands of *America*;

* *Aristot. Hist. An.* lib. ii. c. 1.—*Cæsar Bel. Gall.* lib. vi.—*Plinii Hist. Nat.* lib. xv. c. 15.—*Oppian Cyneget.* ii. Lin. 160.

† *Br. Zool.* i. No 3.—*Voy. Hebrides*, 124.—*Four. Scotl.* 1772, Part ii. p. 285.

‡ There is a very fine figure of the *European Bison* in *Mr. Ridinger's Jagbare Thiere*: and

and the many islands off of that promontory, with the *Aleutian* or *New Fox* islands, somewhat more distant, stretching very near to *America*, may with great reason be supposed to be fragments of land which joined the two continents, and formed into their insular state by the mighty convulsion which divided *Asia* from *America*. *Spain* was probably thus disjoined from *Africa*; *Britain* from *France*; *Iceland* from *Greenland*; *Spitzbergen* from *Lapland*.

But that they passed from *Asia* to *America* is far the more probable, than that they stocked the new world from the side of *Europe*, not only on account of the present narrowness of the strait between the two continents, which gives a greater cause to suppose them to have been once joined; but that we are now arrived at a certainty, that these animals in antient days were natives of *Siberia*: the skulls, with the horns affixed, of a size far superior to any known at this time, have been found fossil not only on the banks of the *Ilga*, which falls into the *Lena*, but even in those of the *Anadyr*, the most eastern of the *Siberian* rivers, and which disembogues north of *Kamtschatka* into those straits: similar skulls and horns have been discovered near *Dirschau*, in *Poland*, also of a gigantic magnitude; and in my opinion of the same species with the modern *Bifons* *.

In *America* these animals are found in the countries six hundred miles west of *Hudson's Bay*; this is their most northern residence. From thence they are met with in great droves as low as *Cibola* †, in lat. 33, a little north of *California*, and also in the province of *Mivera*, in *New Mexico* ‡; the species instantly ceases south of those countries. They inhabit *Canada*, to the west of the lakes; and in greater abundance in the rich *savannas* which border the river *Mississipi*, and the great rivers which fall into it from the west, in the upper *Louisiana* §.

AMERICA.

* *Nov. Com. Petrop.* xvii. 460. tab. xi. xii.—I am sorry to dissent from my esteemed friend Doctor *Pallas*, who thinks them to be the horns of *Buffaloes*; which are longer, straighter, and angular.

† *Purchas*, iv. 1560, 1566. ‡ *Fernandez, Nov. Hisp.* x. c. 30.—*Hernandez*, 58.
§ *Du Pratz*, ii. 50. i. 116. 286.

B I S O N.

There they are seen feeding in herds innumerable, promiscuously with multitudes of stags and deer, during morning and evening; retiring in the sultry heats into the shade of tall reeds, which border the rivers of *America*.

TIMID.

They are exceedingly shy; and very fearful of man, unless they are wounded, when they pursue their enemy, and become very dangerous.

CHASE.

The chase of these animals is a favorite diversion of the *Indians*: it is effected in two ways; first, by shooting; when the marksman must take great care to go against the wind, for their smell is so exquisite that the moment they get scent of him they instantly retire with the utmost precipitation*. He aims at their shoulders, that they may drop at once, and not be irritated by an ineffectual wound. Provided the wind does not favor the beasts, they may be approached very near, being blinded by the hair which covers their eyes. The other method is performed by a great number of men, who divide and form a vast square: each band sets fire to the dry grass of the savanna where the herds are feeding; these animals have a great dread of fire, which they see approach on all sides; they retire from it to the center of the square†; the bands close, and kill them (pressed together in heaps) without the least hazard. It is pretended, that on every expedition of this nature, they kill fifteen hundred or two thousand beeves.

ANOTHER METHOD.

The hunting-grounds are prescribed with great form, least the different bands should meet, and interfere in the diversion. Penalties are enacted on such who infringe the regulations, as well as on those who quit their posts, and suffer the beasts to escape from the hollow squares; the punishments are, the stripping the delinquents, the taking away their arms (which is the greatest disgrace a savage can undergo), or lastly, the demolition of their cabins‡.

* *Du Pratz*, i. 49. ii. 227.

† *Charlevoix*, *N. France*, v. 192.

‡ *Charlevoix*, v. 192.

B I S O N.

5

The uses of these animals are various. Powder-flasks are made of their horns. The skins are very valuable; in old times the *Indians* made of them the best targets*. When dressed, they form an excellent buff; the *Indians* dress them with the hair on, and cloath themselves with them; the *Europeans* of *Louisiana* use them for blankets, and find them light, warm, and soft. The flesh is a considerable article of food, and the bunch on the back is esteemed a very great delicacy. The Bulls become excessively fat, and yield great quantity of tallow, a hundred and fifty pounds weight has been got from a single beast†, which forms a considerable matter of commerce. These over-fed animals usually become the prey of Wolves; for, by reason of their great unwieldiness, they cannot keep up with the herd.

Uses.

SKIN.

TALLOW.

The *Indians*, by a very bad policy, prefer the flesh of the Cows; which in time will destroy the species: they complain of the rankness of that of the Bulls; but *Du Pratz* thinks the last much more tender, and that the rankness might be prevented, by cutting off the testicles as soon as the beast is killed.

The hair or wool is spun into cloth, gloves, stockings, and garters, which are very strong, and look as well as those made of the best sheeps wool; Governor *Pownall* assures us, that the most luxurious fabrick might be made of it‡. The fleece of one of these animals has been found to weigh eight pounds.

HAIR.

Their sagacity in defending themselves against the attacks of Wolves is admirable: when they scent the approach of a drove of those ravenous creatures, the herd flings itself into the form of a circle: the weakest keep in the middle, the strongest are ranged on the outside, presenting to the enemy an impenetrable front of horns: should they be taken by surprize, and have recourse to flight, numbers of the fattest or the weakest are sure to perish ||.

DEFENCE
AGAINST
WOLVES.

* *Purchas*, iv. 1550.

† *Du Pratz*.

‡ *Topog. Descr. N. Am.* 8.

|| *Du Pratz*, i. 288.

Attempts

6
HARD TO BE
TAMED.

Attempts have been made to tame and domesticate the wild, by catching the calves and bringing them up with the common kind, in hopes of improving the breed. It has not yet been found to answer: notwithstanding they had the appearance for a time of having lost their savage nature, yet they always grew impatient of restraint, and, by reason of their great strength, would break down the strongest inclosure, and entice the tame cattle into the corn-fields. They have been known to engender together, and to breed; but I cannot learn whether the species was meliorated * by the intercourse: probably perseverance in continuing the crosses is only wanted to effect their thorough domestication; as it is notorious that the *Bisons* of the old world were the original stock of all our tame cattle.

These were the only animals which had any affinity to the *European* cattle on the first discovery of the new world: before that period, it was in possession of neither Horse nor Ass, Cow nor Sheep, Hog, Goat, nor yet that faithful animal the Dog. Mankind were here in a state of nature; their own passions unsubdued, they never thought of conquering those of the brute creation, and rendering them subservient to their will. The few animals which they had congenerous to those mentioned, might possibly by industry have been reclaimed. This animal might have been brought to all the uses of the *European* Cow; the *Pecari* might have been substituted for the Hog; the Fox or Wolf for the Dog: but the natives, living wholly by chase, were at war with the animal creation, and neglected the cultivation of any part, except the last, which was imperfectly tamed.

Such is the case even to the present hour; for neither the example of the *Europeans*, nor the visible advantages which result from an attention to that useful animal the Cow, can induce the *Indian* to pay any respect to it. He contemns every species of domestic labour, except what is necessary for forming a provision of bread. Every

* *Kalm*, i. 207.

wigwam or village has its plantation of *Mayz*, or *Indian* corn, and on that is his great dependence, should the chase prove unsuccessful.

Domesticated cattle are capable of enduring very rigorous climates ; Cows are kept at *Quickjock* in *Lecba Lapmark*, not far from the arctic circle ; but they do not breed there, the succession being preserved by importation : yet in *Iceland*, a small portion of which is within the circle, cattle abound, and breed as in more southern latitudes : they are generally fed with hay, as in other places ; but where there is scarcity of fodder, they are fed with the fish called the Sea-Wolf, and the heads and bones of Cod beaten small, and mixed with one quarter of chopped hay : the cattle are fond of it, and, what is wonderful, yield a considerable quantity of milk. It need not be said that the milk is bad.

LAPMARK.

ICELAND.

Kamtschatka, like *America*, was in equal want of every domestic animal, except a wolf-like Dog, till the *Russians* of late years introduced the Cow and Horse. The colts and calves brought from the north into the rich pastures of *Kamtschatka*, where the grass is high, grow to such a size, that no one would ever suspect them to be descended from the Ponies and Runts of the *Lena* *. The *Argali*, the stock of the tame Sheep, abounds in the mountains, but even to this time are only objects of chase. The natives are to this hour as uncultivated as the good *Evander* describes the primary natives of *Latium* to have been, before the introduction of arts and sciences.

KAMTSCHATKA.

Queis neque mos, neque cultus erat, nec jungere tauros,
Aut componere opes norant, aut parcere parto :
Sed rami atque asper victu venatus alebat.

No laws they know, no manners, nor the care
Of lab'ring Oxen, or the shining Share ;
No arts of gain, nor what they gain'd to spare :
Their exercise the chase : the running flood
Supplied their thirst ; the trees supplied their food.

}

Dryden.

* *Pallas, Sp. Zool. fasc. xi. 76.*

Musk.

2. MUSK:

Musk Ox, *Hist. Quad.* N° 9.Le Bœuf musqué, de *M. Jeremie, Voy. au Nord*, iii. 314.—*Charlevoix, N. France*, v. 194.—*LEV. MUS.*

BULL. With horns closely united at the base; bending inwards and downwards; turning outwards towards their ends, which taper to a point, and are very sharp: near the base are two feet in girth; are only two feet long measured along the curvature: weight of a pair, separated from the head, sometimes is sixty pounds*.

The hair is of a dusky red, extremely fine, and so long as to trail on the ground, and render the beast a seeming shapeless mass, without distinction of head or tail†: the legs and tail very short: the shoulders rise into a lump.

SIZE:

In size lower than a Deer, but larger as to belly and quarters‡. I have only seen the head of this animal; the rest of the description is taken from the authorities referred to: but by the friendship of *Samuel Wegg, Esq;* I received last year a very complete skin of the cow of this species, of the age of three years, which enables me to give the following description:

Cow. The nostrils long and open: the two middle cutting teeth broad, and sharp-edged; the three on each side small, and truncated: under and upper lips covered with short white hairs on their fore part, and with pale brown on their sides: hair down the middle of the forehead long and erect; on the cheeks smooth and extremely long and pendulous, forming with that on the throat a long beard: the hair along the neck, sides, and rump hangs in the same manner, and almost touches the ground: from the hind part of the head to the shoulders is a bed of very long soft hair, forming an upright mane: in the old beasts the space between the shoulders rises into a

* *M. Jeremie, in Voyages au Nord*, iii. 315.

† The same.

‡ *Drage's Voy.* ii. 260.

hunch:

*B. Maillou sculp.**Wm. P. Smith del.*

8 Musk Bull & Cow. N. 2.



hunch: the legs are very short, covered with smooth whitish hairs; those which encircle the hoofs very long, and of a pure white: hoofs short, broad, and black: the false hoofs large in proportion: tail only three inches long, a mere stump, covered with very long hairs, so as to be undistinguishable to the sight. Of the tail, the *Eskimaux* of the north-west side of the bay make a cap of a most horrible appearance; for the hairs fall all round their head, and cover their faces; yet it is of singular service in keeping off the Musquetoes, which would otherwise be intolerable*.

Space between the horns nine inches: the horns are placed exactly on the sides of the head; are whitish; thirteen inches and a half long; eight inches and a half round at the base; of the same sort of curvature with those of the Bull: the ears are three inches long, quite erect; sharp-pointed, but dilate much in the middle; are thickly lined with hair of a dusky color, marked with a stripe of white.

HORNS.

EARS.

COLOR.

The color of the hair black, except on these parts:—from the base of one horn to that of the other, is a bed of white and light rust-colored hair: the mane is dusky, tinged with red, which is continued in a narrow form to the middle of the back; on which is a large roundish bed of pure white, and the hairs in that space shorter than any of the rest, not exceeding three inches in length, and of a pale brown towards their roots.

HAIR.

The hairs are of two kinds, the longest measure seventeen inches; are very fine and glossy, and when examined appear quite flat: this is the black part, which cloaths most part of the animal.

The bed of hair between the horns, and that which runs along the top of the neck, is far finer and softer than any human hair, and appears quite round. The white bed is still finer, and approaches to the nature of wool.

WOOL.

Beneath every part of the hair grows in great plenty, and often in flocks, an ash-colored wool, most exquisitely fine, superior, I think,

* *Ellis's voy.* 232.

to any I have seen, and which might be very useful in manufactures if sufficient could be procured. I give full credit to *M. Jeremie*, who says, that he brought some of the wool to *France*, and got stockings made with it, more beautiful than those of silk *. The skin is thin.

Size.

The length of the whole hide, from nose to tail, is about six feet four inches: of the head alone fourteen inches. The legs could not be well measured, but were little more than a foot long.

The situation of these animals is very local. They appear first in the tract between *Churchill* river and that of *Seals*, on the west side of *Hudson's Bay*. They are very numerous between the latitudes 66 and 73 north, which is as far as any tribes of *Indians* go. They live in herds of twenty or thirty. *Mr. Hearn* † has seen in the high latitudes several herds in one day's walk. They delight most in the rocky and barren mountains, and seldom frequent the woody parts of the country. They run nimbly, and are very active in climbing the rocks. The flesh tastes very strong of Musk, and the heart is so strongly infected as hardly to be eatable; but the former is very wholesome, having been found to restore speedily to health the sickly crew who made it their food ‡.

They are shot by the *Indians* for the sake of the meat and skins, the last from its warmth making excellent blankets. They are brought down on sledges to the forts annually during winter, with about three or four thousand weight of the flesh. These are called *Churchill* Buffaloes, to distinguish them from the last species, which are in *Hudson's Bay* called *Inland* Buffaloes, of which only the tongues are brought as presents ||.

They are found also in the land of the *Cris* or *Cristinaux*, and the *Astinibouels*: again among the *Attimospiquay*, a nation supposed to in-

* *Voy. au Nord*, iii. 314.

† The gentleman who undertook, in 1770, 1771, 1772, the arduous journey to the *Icy Sea*, from *Prince of Wales's Fort*, *Hudson's Bay*. To him, through *Mr. Wegg's* interest, I am indebted for the skin and this information.

‡ *Drage's voy.* ii. 260.

|| *Mr. Graham's MS.*

habit about the head of the river of *Seals* *, probably not very remote from the South Sea. They are continued from these countries southward, as low as the provinces of *Quivera* and *Cibola*; for Father *Marco di Niça*, and *Gomara*, plainly describe both kinds †.

Some of the skulls of this species have been discovered on the mossy plains near the mouth of the *Oby* in *Siberia*. It is not said how remote from the sea; if far, they probably in some period might have been common to the north of *Asia* and of *America*; if near the shore, it is possible that the carcases might have floated on the ice from *America* to the places where the remains might have been found ‡. Of this species was the head, and such were the means of conveyance, from the coast of *Hudson's* or *Baffin's*, mentioned by Mr. *Fabricius*, and which he saw so brought to *Greenland* ||; for it could not have been, as he conjectures, the head of the *grunting Ox*, an animal found only in the very interior parts of northern *Asia*.

* *Dobbs's Hudson's Bay*, 19, 25. † *Purchas*, iv. 1561. v. 854. ‡ *Pallas*,
en nov. com. Petrop. xvii. 601. tab. xvii. || *Faun. Groenl.* 28.

S H E E P. *Hist. Quad.* GENUS III.

ARGALI: Wild Sheep, *Hist. Quad.* N^o 11. H. p. 38.—*Smellie*, vi. 205.—
LEV. MUS.

THE Sheep, in its wild state, inhabits the north-east of *Asia*, beyond lake *Baikal*, between the *Onon* and *Argun*, to the height of latitude 60, on the east of the *Lena*, and from thence to *Kamtschatka*, and perhaps the *Kurili* islands. I dare not pronounce that they extend to the continent of *America*; yet I have received from Doctor *Pallas* a fringe of very fine twisted wool, which had ornamented a dress from the isle of *Kadjak*; and I have myself another piece from the habit of the *Americans* in latitude 50. The first was of a snowy whiteness, and of unparalleled fineness; the other as fine, but of a pale brown color: the first appeared to be the wool which grows intermixed with the hairs of the *Argali*; the last, that which is found beneath those of the Musk Ox. Each of these animals may exist on that side of the continent, notwithstanding they might have not fallen within the reach of the navigators in their short stay off the coast.

Certain quadrupeds of this genus were observed in *California* by the missionaries in 1697; one as large as a Calf of one or two years old, with a head like a Stag, and horns like a Ram: the tail and hair speckled, and shorter than a Stag's. A second kind was larger, and varied in color; some being white, others black, and furnished with

with very good wool. The Fathers called both Sheep, from their great resemblance to them *. Either the *Americans* of latitude 50 are possessed of these animals, or may obtain the fleeces by commerce from the southern *Indians*.

The *Argali* abound in *Kamtschatka*; they are the most useful of their animals, for they contribute to food and cloathing. The *Kamtschatkans* cloath themselves with the skins, and esteem the flesh, especially the fat, diet fit for the Gods. There is no labor which they will not undergo in the chase. They abandon their habitations, with all their family, in the spring, and continue the whole summer in the employ, amidst the rude mountains, fearless of the dreadful precipices, or of the *avelanches*, which often overwhelm the eager sportsmen.

CHASE IN
KAMTSCHATKA.

These animals are shot with guns or with arrows; sometimes with cross-bows, which are placed in the paths, and discharged by means of a string whenever the *Argali* happens to tread on it. They are often chased with dogs, not that they are overtaken by them; but when they are driven to the lofty summits, they will often stand and look as if it were with contempt on the dogs below, which gives the hunter an opportunity of creeping within reach while they are so engaged; for they are the shyest of animals.

The *Mongols* and *Tungusi* use a nobler species of chase: they collect together a vast multitude of horses and dogs, attempting to surround them on a sudden; for such is their swiftness and cunning, that if they perceive, either by sight or smell, the approach of the *chasseurs*, they instantly take to flight, and secure themselves on the lofty and inaccessible summits.

IN MONGOLIA.

Domesticated Sheep will live even in the dreadful climate of *Greenland*. Mr. *Fabricius* † says, they are kept in many places. They are very numerous in *Iceland*. Before the epidemical disease which raged among them from 1740 to 1750, it was not uncommon for a

SHEEP IN
ICELAND.

* *Ph. Trans. abr.* v. part ii. 195.

† *Faun. Groenl.* p. 29.

single

single person to be possessed of a thousand or twelve hundred. They have upright ears, short tails, and often four or five horns *. They are sometimes kept in stables during winter, but usually left to take their chance abroad, when they commonly hide themselves in the caves of exhausted vulcanoes †. They are particularly fond of scurvy-grass, with which they grow so fat as to yield more than twenty pounds. The ewes give from two to six quarts of milk a day, of which butter and cheese is made. The wool is never shorn, but left on till the end of *May*, when it grows loose, and is stripped entirely off in one fleece; and a fine, short, and new wool appears to have grown beneath; this continues growing all summer, becomes smooth and glossy like the hair of Camels, but more shaggy ‡. With the wool the natives manufacture their cloth; and the flesh dried is an article of commerce.

In all parts of *European Russia* are found the common Sheep. Those of the very north, and of the adjacent *Finmark*, have short tails and upright ears, and wool almost as rude as the hair of Goats; but are seldom polyceratous. They sometimes breed twice in a year, and bring twins each time ||.

In the *Asiatic* dominions of *Russia*, from the borders of *Russia* to those of *China*, is a most singular variety of Sheep, destitute of tails, with rumps swelling into two great, naked, and smooth hemispheres of fat, which sometimes weigh forty pounds: their noses are arched: their ears pendulous: their throats wattled: their heads horned, and sometimes furnished with four horns. These are so abundant throughout *Tartary*, that a hundred and fifty thousand have been annually sold at the *Orenburg* fairs; and a far greater number at the fort *Troizkaja*, from whence they are driven for slaughter into diffe-

* *Smellie*, vi. 207, 219.

† *Herrebow*, 46.

‡ *Troil's voy.* 138.

|| *Leems*, 228.

rent parts of *Russia* *. Sheep do not thrive in *Kamtschatka*, by reason of the wetness of the country.

Sheep abound in *New England* and its islands: the wool is short, and much coarser than that of *Great Britain*; possibly proper attention to the housing of the Sheep may in time improve the fleece; but the severity of the climate will ever remain an obstacle to its perfection. Manufactures of cloth have been established, and a tolerable cloth has been produced, but in quantities in no degree equal to the consumption of the country. *America* likewise wants downs; but by clearing the hills of trees, in a long series of years that defect may be alleviated. As we advance further south, the Sheep grow scarcer, worse, and the wool more hairy.

* *Pallas, Sp. Zool. fasc. xi. 63. tab. ix.*

G O A T.

G O A T. *Hist. Quad.* GENUS IV.

IBEX, *Hist. Quad.* N° 13. * is supposed to extend to the mountains of the eastern part of *Siberia*, beyond the *Lena*, and to be found within the government of *Kamtschatka*.—*LEV. Mus.*

THE tame Goat inhabits northern *Europe* as high as *Wardbuys*, in latitude 71, where it breeds, and runs out the whole year, only during winter has the protection of a hovel: it lives during that season on moss and bark of Fir-trees, and even of the logs cut for fuel. They are so prolific as to bring two, and even three, at a time. In *Norway* they thrive prodigiously, infomuch that 70 or 80,000 of raw skins are annually exported from *Bergen*, besides thousands that are sent abroad dressed.

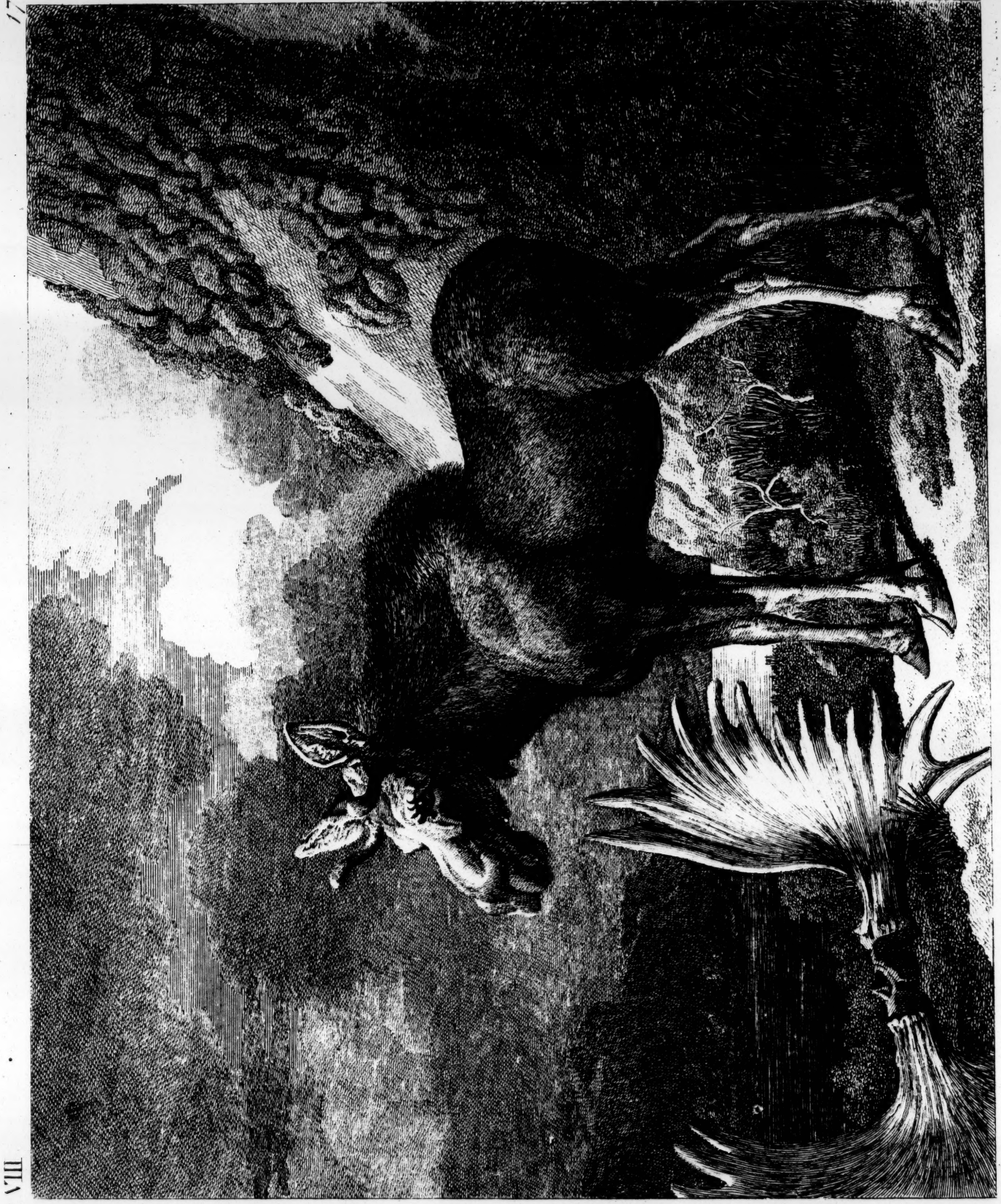
Goats are also kept in *Iceland*, but not in numbers, by reason of the want of shrubs and trees for them to brouze. They have been introduced into *Greenland*, even to some advantage. Besides vegetable food, they will eat the *Arctic* trouts dried; and grow very fat †.

The climate of *South America* agrees so well with Goats, that they multiply amazingly: but they succeed so ill in *Canada*, that it is necessary to have new supplies to keep up the race ‡.

* *Smellie*, vi. 363.† *Faun. Groenl.* p. 29.‡ *De Buffon*, ix. 71.

D E E R.





MOOSE DEER.

D E E R. *Hist. Quad.* GENUS VII.Elk, *Hist. Quad.* N° 42.—*Smellie* vi. 315.—*LEV. Mus.*

3. MOOSE.

D E E R. With horns with short beams, spreading into a broad palm, furnished on the outward side with sharp snags; the inner side plain: no brow antlers: small eyes: long slouching asinine ears: nostrils large: upper lip square, great, and hanging far over the lower; has a deep furrow in the middle, so as to appear almost bifid: under the throat a small excrescence, with a long tuft of coarse black hair pendent from it: neck shorter than the head; along the top an upright, short, thick, mane: withers elevated: tail short: legs long; the hind legs the shortest: hoofs much cloven.

Color of the mane a light brown; of the body in general a hoary brown: tail dusky above; white beneath. The vast size of the head, the shortness of the neck, and the length of the ears, give the beast a deformed and stupid look.

COLOR.

The greatest height of this animal, which I have heard of, is seventeen hands; the greatest weight 1229 pounds.

SIZE.

The largest horns I have seen are in the house of the *Hudson's Bay* Company; they weigh fifty-six pounds: their length is thirty-two inches; breadth of one of the palms thirteen inches and a half; space between point and point thirty-four.

OF HORNS.

The female is lesser than the male, and wants horns.

Inhabits the isle of *Cape Breton*, *Nova Scotia*, and the western side of the Bay of *Fundy*; *Canada*, and the country round the great lakes, almost as far south as the river *Ohio* *. These are its present northern and southern limits. In all ages it affected the cold and wooded regions in *Europe*, *Asia*, and *America*. They are found in all the woody tracts of the temperate parts of *Russia*, but not on the Arctic flats, nor yet in *Kamtchatka*. In *Siberia* they are of a monstrous size, particularly among the mountains.

PLACE.

* *Du Pratz*, i. 301.

D

The

NAME.

The Elk and the Moose are the same species; the last derived from *Musu*, which in the *Algonkin* language signifies that animal *. The *English* used to call it the Black Moose, to distinguish it from the Stag, which they named the Grey Moose †. The *French* call it *L'Original*.

RESIDENCE AND
FOOD.

These animals reside amidst forests, for the conveniency of brousing the boughs of trees, because they are prevented from grazing with any kind of ease, by reason of the shortness of their necks and length of their legs. They often have recourse to water-plants, which they can readily get at by wading. *M. Sarrafin* says, that they are very fond of the *anagyris fetida*, or stinking bean trefoil, and will uncover the snow with their feet in order to get at it.

In passing through the woods, they raise their heads to a horizontal position, to prevent their horns from being entangled in the branches.

GAIT.

They have a singular gait: their pace is a shambling trot, but they go with great swiftness. In their common walk they lift their feet very high, and will without any difficulty step over a gate five feet high.

They feed principally in the night. If they graze, it is always against an ascent; an advantage they use for the reason above assigned. They ruminate like the Ox.

RUMINATE.

YOUNG.

They go to rut in autumn; are at that time very furious, seeking the female by swimming from isle to isle. They bring two young at a birth, in the month of *April*, which follow the dam a whole year. During the summer they keep in families. In deep snows they collect in numbers in the forests of pines, for protection from the inclemency of the weather under the shelter of those ever-greens.

They are very inoffensive, except in the rutting-season; or except they are wounded, when they will turn on the assailant, and attack

* *Kalm*, i. 298. iii. 204.† *Mr. Dudley's Phil. Transf. Abridg.* vii. 447.

him with their horns, or trample him to death beneath their great hoofs.

Their flesh is extremely sweet and nourishing. The *Indians* say, that they can travel three times as far after a meal of Moose, as after any other animal food. The tongues are excellent, but the nose is perfect marrow, and esteemed the greatest delicacy in all *Canada*.

The skin makes excellent buff; is strong, soft, and light. The *Indians* dress the hide, and, after soaking it for some time, stretch and render it supple by a lather of the brains in hot water. They not only make their snow-shoes of the skin, but after a chase form the canoes with it: they sew it neatly together, cover the seams with an unctuous earth, and embark in them with their spoils to return home*.

The hair on the neck, withers, and hams of a full-grown Elk is of much use in making mattresses and saddles; being by its great length well adapted for those purposes.

The palmated parts of the horns are farther excavated by the savages, and converted into ladles, which will hold a pint.

It is not strange that so useful an animal should be a principal object of chase. The savages perform it in different ways. The first, and the more simple, is before the lakes or rivers are frozen. Multitudes assemble in their canoes, and form with them a vast crescent, each horn touching the shore. Another party perform their share of the chase among the woods; they surround an extensive tract, let loose their dogs, and press towards the water with loud cries. The animals, alarmed with the noise, fly before the hunters, and plunge into the lake, where they are killed by the persons in the canoes, prepared for their reception, with lances or clubs†.

The other method is more artful. The savages inclose a large space with stakes hedged with branches of trees, forming two sides

FLESH.

SKIN.

HAIR.

HORNS.

CHASE.

* *La Hontan*, i. 59.† *Charlevoix*, v. 188.

of a triangle : the bottom opens into a second enclosure, completely triangular. At the opening are hung numbers of snares, made of slips of raw hides. The *Indians*, as before, assemble in great troops, and with all kinds of noises drive into the first enclosure not only the Mooses, but the other species of Deer which abound in that country : some, in forcing their way into the farthest triangle, are caught in the snares by the neck or horns ; and those which escape the snares, and pass the little opening, find their fate from the arrows of the hunters, directed at them from all quarters *.

They are often killed with the gun. When they are first unharboured, they squat with their hind parts and make water, at which instant the sportsman fires ; if he misses, the Moose sets off in a most rapid trot, making, like the Rein-deer, a prodigious rattling with its hoofs, and will run for twenty or thirty miles before it comes to bay or takes the water. But the usual time for this diversion is the winter. The hunters avoid entering on the chase till the sun is strong enough to melt the frozen crust with which the snow is covered, otherwise the animal can run over the firm surface : they wait till it becomes soft enough to impede the flight of the Moose ; which sinks up to the shoulders, flounders, and gets on with great difficulty. The sportsman pursues at his ease on his broad rackets, or snow-shoes, and makes a ready prey of the distressed animals,

As weak against the mountain heaps they push,
Their beating breast in vain, and piteous bray,
He lays them quivering on th' ensanguin'd snows,
And with loud shouts rejoicing bears them home.

THOMPSON.

SUPERSTITIONS
RELATING TO
THE MOOSE.

The opinion of this animal's being subject to the epilepsy seems to have been universal, as well as the cure it finds by scratching its ear with the hind hoof till it draws blood. That hoof has been used in *Indian* medicine for the falling-sickness ; they apply it to the heart of

* *Charlevoix*, and *La Hontan*, i. 65.

the afflicted, make him hold it in his left hand, and rub his ear with it. They use it also in the colick, pleurisy, vertigo, and purple fever; pulverising the hoof, and drinking it in water. The *Algonkins* pretend that the flesh imparts the disease; but it is notorious that the hunters in a manner live on it with impunity.

The savages esteem the Moose a beast of good omen; and are persuaded that those who dream often of it may flatter themselves with long life*.

Their wild superstition hath figured to them a Moose of enormous size, which can wade with ease through eight feet depth of snow; which is invulnerable, and has an arm growing out of its shoulder, subservient to the purposes of the human: that it has a court of other Mooses, who at all times perform suit and service, according to his royal will†.

I lament that I am not able to discover the animal which owned the vast horns so often found in the bogs of *Ireland*, so long and so confidently attributed to the *Moose*. These have been found to be sometimes eight feet long, fourteen between tip and tip‡, furnished with brow antlers, and weighing three hundred pounds: the whole skeleton is frequently found with them.

The fables delivered by *Josselyn*, of the Moose being thirty-three hands, or twelve feet, high; and by *Le Hontan*, of its horns weighing between three and four hundred pounds; occasioned the naturalists of past times to call the fossil horns those of the Moose; and to flatter themselves that they had discovered the animal they belonged to: but recent discoveries evince the error. I once entertained hopes that the *Waskeffe*§ of the *Hudson's Bay Indians* was the species; but by some late information I received from Mr. *Andrew Graham*, factor in the *Bay*, I find it to be no other than the common Moose.

FOSSIL HORNS:
NOT BELONGING
TO THE MOOSE.

* *Charlevoix*, v. 186.
book iii. 20. tab. xxii.

† The same.
§ *Hist. Quad.* 45.

‡ *Wright's Louisiana*.

4. REIN.

Hist. Quad. N° 43.—*Smellie*, vi. 316.—*Hackluyt*, iii. 114.—*LEV. Mus.*

DEER. With large but slender horns, bending forward; with brow antlers broad and palmated, sometimes three feet nine inches long; two feet six from tip to tip; weight, nine pounds twelve ounces avoirdupoise. The body is thick and square: the legs shorter than those of a Stag: the height of a full-grown Rein four feet six.

Color of the hair, at first shedding of the coat, of a brownish ash; afterwards changes to a hoary whiteness. The animal is admirably guarded against the rigor of the climate by the great thickness of the hairs, which are so closely placed as totally to hide the skin, even if they are put aside with ever so much care.

Space round the eyes always black: nose, tail, and belly white: above the hoofs a white circle: hair along the lower side of the neck very long: tail short.

Hoofs, and false hoofs, long and black; the last loosely hung, making a prodigious clatter when the animal runs.

FEMALE.

The female is furnished with horns; but lesser, broader, and flatter, and with fewer branches than those of the male. She has six teats, but two are spurious and useless. They bring two young at a time.

PLACE.

HUDSON'S-BAY.

The habitation of this Deer is still more limited than that of the former, confined to those parts where cold reigns with the utmost severity. Its most southern residence is the northern parts of *Canada*, bordering on the territories of *Hudson's Bay*. *Charlevoix* mentions a single instance of one wandering as far as the neighborhood of *Quebec* *. Their true place is the vast tract which surrounds the

* V. 191.

Bay. They are met with in *Labrador*, and again in *Newfoundland*, originally wafted thither across the narrow straits of *Bellaïse*, on islands of ice.

LABRADOR.
NEWFOUNDLAND.

They spread northerly into *Greenland*, particularly on the western coast, about *Disko* *. I can find no traces (even traditional) of them in *Iceland*; which is the more surprising, as that island lies nearer to *Greenland* than *Newfoundland* does to the *Labrador* coast. It is probable that they were destroyed in very early times, when that island was so infinitely more populous than it is at present; and the farther migration of these animals prevented by the amazing aggregate of ice, which in later ages blocked up and even depopulated the eastern side of *Greenland*. No vegetable, not even moss, is to be found on that extensive coast to support these hardy animals. Their last migration was from the western parts of *Greenland*, over unknown regions and fields of ice, to the inhospitable *Alps* of *Spitzbergen*. These, with the Polar Bear and Arctic Fox, form the short catalogue of its quadrupeds. They reside there throughout the year; and by wondrous instinct do discover their food, the *lichen rangiferinus*, beneath the snow, which they remove to great depths by means of their broad and spade-like antlers; and thus find subsistence thirteen degrees beyond the *Arctic* circle †.

GREENLAND.

SPITZBERGEN.

To the western side of *Hudson's Bay* I trace the Rein as far as the nation called *Les Plat-côté des Chiens* ‡, the remotest we are acquainted with in the parallel of that latitude. Beyond, are lands unknown, till we arrive at that new-discovered chain of islands, which extends to within a small distance of *Asia*, or the northern cape of *Kamtshatka*, where I again recover these animals. There is reason to imagine that they are continued across the continent of *America*, but not on the islands which intervene between it and *Asia* §. But in the

KAMTSCHATKA.

* *Egede*, 59. *Grantz*, i. 70.—The Canadians call it *Le Caribou*. † *Marten's Spitzbergen*, 99. *Phipps's voy.* 185. ‡ *Dobbs's Hudson's Bay*, 19. § *Muller's voyages from Asia to America*, Preface xxv.

isle of *Kadjak*, and others of the easternmost *Fox islands*, the inhabitants have skins of them from the *American* continent, and border their bonnets with the white hairs of the domestic *Rein-deers*, stained red. They are found again in the countries which border on the *Icy sea* *; from which they retire, at approach of winter, towards the woods, to feed on the moss, not only that which grows on the ground, but the species pendulous from the trees. The whole north-east of *Siberia* abounds with them. They also are yet found wild in the *Urallian* mountains; along the river *Kama*, as far as *Kungus*; and about some snowy summits more south: and again on the high chain bordering on *Siberia* on the south, and about lake *Baikal*. Towards the west they are continued in the land of the *Samoieds*; and finally among the well-known *Laplanders*. I here transgress the limits of my plan, to give a slight comparative view of the progress of civilization among the inhabitants of these frozen climes.

SAMOIEDEA.

LAPLANDERS,
THEIR USES OF IT.

With the *Laplanders* this animal is the substitute to the Horse, the Cow, the Sheep, and the Goat. Those most innocent of people have, even under their rigorous sky, some of the charms of a pastoral life. They have subdued these animals to various uses, and reclaimed them from their wild state. They attend their herds of *Rein-deer*, during summer, to the summits of their alps; to the sides of their clear lakes and streams, often bordered with native roses. They know the arts of the dairy, milk these their cattle, and make from it a rich cheese. They train them to the sledge, consider them as their chief treasure, and cherish them with the utmost tenderness.

SAMOIEDES.

The brutish *Samoied* considers them in no other view than as animals of draught, to convey them to the chase of the wild *Reins*; which they kill for the sake of the skins, either to cloath themselves, or to cover their tents. They know not the cleanly delicacy of the milk or cheese, but prefer for their repast the intestines of beasts, or the half-putrid flesh of a horse, ox, or sheep, which they find dead on the high road †.

* *Barentz voy.*† *Lé Bruyn, i. 7, 8.*

The *Koreki*, a nation of *Kamtschatka*, may be placed on a level with the *Samoieds*; they keep immense herds of Reins; some of the richest, to the amount of ten or twenty thousand; yet so fordid are they as to eat none except such which they kill for the sake of the skins; an article of commerce with their neighbors the *Kamtschatkans*: otherwise they content themselves with the flesh of those which die by disease or chance. They train them in the sledge, but neglect them for every domestic purpose*. Their historian says, they couple two to each carriage; and that the Deer will travel a hundred and fifty versts in a day, that is, a hundred and twelve *English* miles. They castrate the males by piercing the spermatic arteries, and tying the scrotum tight with a thong.

KOREKI.

The inhabitants about the river *Kolyma* make use of the soft skins of the Rein-deer, dressed, for sails for a kind of boat called *Schitiki*, caulked with moss; and the boards as if sewed together with thongs; and the cordage made of slices of the skin of the Elk †.

The savage and uninformed *Eskimaux* and *Greenlanders*, who possess, amidst their snows, these beautiful animals, neglect not only the domestic uses, but even are ignorant of their advantage in the sledge. Their element is properly the water; their game the Seals. They seem to want powers to domesticate any animals unless Dogs. They are at enmity with all; consider them as an object of chase, and of no utility till deprived of life. The flesh of the Rein is the most coveted part of their food; they eat it raw, dressed, and dried and smoked with the snow lichen. The wearied hunters will drink the raw blood; but it is usually dressed with the berries of the heath: they eagerly devour the contents of the stomach, but use the intestines boiled. They are very fond of the fat, and will not lose the least bit ‡. The skin, sometimes a part of their cloathing, dressed with the hair on, is soft and pliant; it forms also the inner lining of their tents, and most

ESKIMAUX
AND
GREENLANDERS.

* *Hist. Kamtschatka*, 226, 227.—The *Koreki* exchange their Deer with the neighboring nations for rich furs. † *Muller's Summary*, Sc. xviii. ‡ *Faun. Groenl.* p. 28.

E

excellent

excellent blankets. The tendons are their bow-strings, and when split are the threads with which they sew their jackets *.

The *Greenlanders*, before they acquired the knowledge of the gun, caught them by what was called the *clapper-hunt* †. The women and children surrounded a large space, and, where people were wanting, set up poles capped with a turf in certain intervals, to terrify the animals; they then with great noise drove the Reins into the narrow defiles, where the men lay in wait and killed them with harpoons or darts. But they are now become very scarce.

MULTITUDES
IN
HUDSON'S BAY.

MIGRATION.

On the contrary, they are found in the neighborhood of *Hudson's Bay* in most amazing numbers, columns of eight or ten thousand are seen annually passing from north to south in the months of *March* and *April* ‡, driven out of the woods by the musketoes, seeking refreshment on the shore, and a quiet place to drop their young. They go to rut in *September*, and the males soon after shed their horns; they are at that season very fat, but so rank and musky as not to be eatable. The females drop their young in *June*, in the most sequestered spots they can find; and then they likewise lose their horns. Beasts of prey follow the herds: first, the Wolves, who single out the stragglers (for they fear to attack the drove) detach and hunt them down: the Foxes attend at a distance, to pick up the offals left by the former. In autumn the Deer with the Fawns re-migrate northward.

USES.

The *Indians* are very attentive to their motions; for the Rein forms the chief part not only of their dress but food. They often kill multitudes for the sake of their tongues only; but generally they separate the flesh from the bones, and preserve it by drying it in the smoke: they also save the fat, and sell it to the *English* in bladders, who use it in frying instead of butter. The skins are also an article of commerce, and used in *London* by the Breeches-makers.

CHASE.

The *Indians* shoot them in the winter. The *English* make hedges, with stakes and boughs of trees, along the woods, for five miles in

* *Drake's voy.* i. 25.

† *Crantz*, i. 71.

‡ *Dobbs*, 19, 22.

length

length, leaving openings at proper intervals beset with snares, in which multitudes are taken.

The *Indians* also kill great numbers during the seasons of migration, watching in their canoes, and spearing them while passing over the rivers of the country, or from island to island; for they swim most admirably well.

Hist. Quad. N° 45.—Smellie iv. 74.—LEV. Mus.

5. STAG.

DEER. With long upright horns much branched: slender and sharp brow antlers: color a reddish brown: belly and lower side of the tail white: the horns often superior in size to those of the *European* Stags, some being above four feet high, and thirty pounds in weight.

Inhabits *Canada*, particularly the vast forests about the lakes; are seen in great numbers grazing with the Buffaloes on the rich savannas bordering on the *Mississipi*, the *Missouri*, and other *American* rivers; they are also found within our Colonies, but their numbers decrease as population gains ground. An *Indian* living in 1748 had killed many Stags on the spot where *Philadelphia* now stands *.

They feed eagerly on the broad-leaved *Kalmia*; yet that plant is a poison to all other horned animals; their intestines are found filled with it during winter. If their entrails are given to Dogs, they become stupified, and as if drunk, and often are so ill as hardly to escape with life †.

Stags are also found in *Mexico*, where they are called *Aculiame*: they differ not from those of *Spain* in shape, size, or nature ‡. *South America* is destitute of these animals: they can bear the extremes of heat but not of cold. They are found neither in *Hudson's Bay*,

* *Kalm* i. 336.

† *Kalm* i. 338.

‡ *Hernandez, Nov. Hisp.* 325.

Kamtchatka, nor in any country inhabited by the *Rein*—a line in a manner separates them.

Their skins are an article of commerce imported * by the *Hudson's Bay* company; but brought from the distant parts far inland by the *Indians*, who bring them from the neighborhood of the lakes. In most parts of *North America* they are called the *Grey Moose*, and the *Elk*; this has given occasion to the mistaken notion of that great animal being found in *Virginia*, and other southern provinces.

The Stags of *America* grow very fat: their tallow is much esteemed for making of candles. The *Indians* shoot them. As they are very shy animals, the natives cover themselves with a hide, leaving the horns erect; under shelter of which they walk within reach of the herd. *De Brie*, in the xxvth plate of the *History of Florida*, gives a very curious representation of this artful method of chase, when it was visited by the *French* in 1564.

Stags are totally extirpated in *Russia*, but abound in the mountainous southern tract of *Siberia*, where they grow to a size far superior to what is known in *Europe*. The height of a grown Hind is four feet nine inches and a half, its length eight feet; that of its head one foot eight inches and a half.

The species ceases in the north-eastern parts of *Siberia*, nor are any found in *Kamtchatka*.

6. VIRGINIAN.

Hist. Quad. N° 46.—*LEV. Mus.*

DEER. With round and slender horns, bending greatly forward; numerous branches on the interior sides: destitute of brow antlers: color of the body a cinereous brown: head of a deep brown: belly, sides, shoulders, and thighs, white, mottled with brown: tail

* In the sale of 1764, 1307 were entered.

ten inches long, of a dusky color: feet of a yellowish brown. Are not so well haunched as the *English* Buck, and are less active*.

Inhabits all the provinces south of *Canada*, but in greatest abundance in the southern; but especially the vast savannas contiguous to the *Mississipi*, and the great rivers which flow into it. They graze in herds innumerable, along with the Stags and Buffaloes. This species probably extends to *Guiana*, and is the *Baiou* of that country, which is said to be about the size of a *European* Buck, with short horns, bending at their ends†.

PLACE.

They are capable of being made tame; and when properly trained, are used by the *Indians* to decoy the wild Deer (especially in the rutting season) within shot. Both Bucks and Does herd from *September* to *March*; after that they separate, and the Does secrete themselves to bring forth, and are found with difficulty. The Bucks from this time keep separate, till the amorous season of *September* revolves. The Deer begin to feed as soon as night begins; and sometimes, in the rainy season, in the day: otherwise they seldom or never quit their haunts. An old *American* sportsman has remarked, that the Bucks will keep in the thickets for a year, or even two‡.

These animals are very restless, and always in motion, coming and going continually§. Those which live near the shores are lean and bad, subject to worms in their heads and throats, generated from the eggs deposited in those parts||. Those that frequent the hills and savannas are in better case, but the venison is dry. In hard winters they will feed on the long moss which hangs from the trees in the northern parts.

These and other cloven-footed quadrupeds of *America* are very fond of salt, and resort eagerly to the places impregnated with it. They are always seen in great numbers in the spots where the ground

FOND OF SALT.

* The late ingenious Mr. *Ellis* shewed me a Bezoar found in one of these Deer, killed in *Georgia*. It was of a spheroid form, an inch and three quarters broad, half an inch thick in the middle; of a pale brown color; hard, smooth, and glossy.

† *Bancroft*.

‡ *Doctor Garden*.

§ *Du Pratz*, ii. 51.

|| *Lawson*, 124.

has been torn by torrents or other accidents, where they are seen licking the earth. Such spots are called *licking-places*. The hunters are sure of finding the game there; for, notwithstanding they are often disturbed, the Buffaloes and Deer are so passionately fond of the savory regale, as to bid defiance to all danger, and return in droves to these favorite haunts.

The skins are a great article of commerce, 25,027 being imported from *New-York* and *Pensylvania* in the sale of 1764.

The Deer are of the first importance to the Savages. The skins form the greatest branch of their traffick, by which they procure from the colonists, by way of exchange, many of the articles of life. To all of them it is the principal food throughout the year; for by drying it over a gentle but clear fire, after cutting it into small pieces, it is not only capable of long preservation, but is very portable in their sudden excursions, especially when reduced to powder, which is frequently done.

Hunting is more than an amusement to these people. They give themselves up to it not only for the sake of subsistence, but to fit themselves for war, by habituating themselves to fatigue. A good huntsman is an able warrior. Those who fail in the sports of the field are never supposed to be capable of supporting the hardships of a campaign; they are degraded to ignoble offices, such as dressing the skins of Deer, and other employs allotted only to slaves and women †.

When a large party meditates a hunting-match, which is usually at the beginning of winter, they agree on a place of rendezvous, often five hundred miles distant from their homes, and a place, perhaps, that many of them had never been at. They have no other method of fixing on the spot than by pointing with their finger. The preference is given to the eldest, as the most experienced ‡.

† *Lawson*, 208.

‡ *Catesby*, App. xii.

When this matter is settled, they separate into small parties, travel and hunt for subsistence all the day, and rest at night ; but the women have no certain resting-places. The Savages have their particular hunting countries ; but if they invade the limits of those belonging to other nations, feuds ensue, fatal as those between *Percy* and *Douglas* in the famed *Chey Chace*.

As soon as they arrive on the borders of the hunting country, (which they never fail doing to a man, be their respective routes ever so distant or so various) the captain of the band delineates on the bark of a tree his own figure, with a Rattlesnake twined round him with distended mouth ; and in his hand a bloody tomahawk. By this he implies a destructive menace to any who are bold enough to invade their territories, or to interrupt their diversion *.

The chase is carried on in different ways. Some surprise the Deer by using the stale of the head, horns, and hide, in the manner before mentioned : but the general method is performed by the whole body. Several hundreds disperse in a line, encompassing a vast space of country, fire the woods, and drive the animals into some strait or peninsula, where they become an easy prey. The Deer alone are not the object ; Foxes, Raccoons, Bears, and all beasts of fur, are thought worthy of attention, and articles of commerce with the *Europeans*.

The number of Deer destroyed in some parts of *America* is incredible ; as is pretended, from an absurd idea which the Savages have, that the more they destroy, the more they shall find in succeeding years. Certain it is that multitudes are destroyed ; the tongues only preserved, and the carcases left a prey to wild beasts. But the motive is much more political. The Savages well discern, that should they overstock the market, they would certainly be over-reached by the *European* dealers, who take care never to produce more goods than are barely sufficient for the demand of the season, establishing their prices according to the quantity of furs brought by the natives. The hunters live in their quarters with the utmost festivity, and indulgence

* *Catesby*, App. ix.

in all the luxuries of the country. The chase rouses their appetites; they are perpetually eating, and will even rise to obey, at midnight, the calls of hunger. Their viands are exquisite. Venison boiled with red pease; turkeys barbecued and eaten with bears fat; fawns cut out of the does belly, and boiled in the native bag; fish, and crayfish, taken in the next stream; dried peaches, and other fruits, form the chief of their good living*. Much of this food is carminative: they give loose to the effects, and (reverse to the custom of the delicate *Arabs*†) laugh most heartily on the occasion‡.

They bring along with them their wives and mistresses: not that they pay any great respect to the fair. They make (like the *Cath-nesiens*) errant pack-horses of them, loading them with provisions, or the skins of the chase; or making them provide fire-wood. Love is not the passion of a Savage, at least it is as brief with them as with the animals they pursue.

7. MEXICAN.

Mexican Roe? *Hist. Quad.* N° 52.—*Smellie*, iv. 136.

DEER. With horns near nine inches long, measuring by the curvature; and near nine inches between tip and tip, and two inches distant between the bases. About an inch and a half from the bottom is one sharp erect snag. This, and the lower parts of the horns, are very rough, strong, and scabrous. The upper parts bend forwards over the bases; are smooth, flatted, and broad, dividing into three sharp snags. Color of the hair like the *European* Roe; but while young are rayed with white. In size somewhat superior to the *European* Roe.

Inhabits *Mexico* ||; probably extends to the interior north-western parts of *America*, and may prove the *Scenoontung* or *Squination*, described as being less than a Buck and larger than a Roe, but very like it, and of an elegant form §.

* *Lawson*, 207.

|| *Hernandez*.

† *D'Arvieux's travels*, 147.

§ *Dobbs's Hudson's Bay*, 24.

‡ *Lawson*, 207.

Hist.

Hist. Quad. N° 51.—*Smellie*, iv. 120.—*Liv. Mus.*

7. ROE.

DEER. With upright, round, rugged horns, trifurcated: hairs tawny at their ends, grey below: rump and under-side of the tail white. Length near four feet: tail only an inch.

According to *Charlevoix*, they are found in great numbers in *Canada*. He says they differ not from the *European* kind: are easily domesticated. The Does will retreat into the woods to bring forth, and return to their master with their young*. They extend far west†. If *Piso's* figure may be depended on, they are found in *Brazil*‡; are frequent in *Europe*; and inhabit as high as *Sweden* and *Norway*§; is unknown in *Russia*.



A. TAIL-LESS ROE, *Hist. Quad.* p. 109.

In its stead is a larger variety: with horns like the last, and color the same; only a great bed of white covers the rump, and extends some way up the back: no tail, only a broad cutaneous excrescence around the anus.

Inhabits all the temperate parts of *Russia* and *Siberia*, and extends as far to the north as the *Elk*. Descends to the open plains in the winter. The *Tartars* call it *Saiga*: the *Russians* *Dikaja Roza*.

B. FALLOW DEER, *Hist. Quad.* N° 44.

Are animals impatient of cold: are unknown in the *Russian* empire, except by importation: and are preserved in parks in *Sweden*||. The *English* translator of *Pontoppidan* mentions them (perhaps erroneously) among the deer of *Norway*.

* *Hist. Nouv. France*, v. 195.

† *Dobbs's Hudson's Bay*, 24.

‡ 97.

§ *Faun. Suec.* N° 43, and *Pontop. Norway*, ii. 9.

|| *Du Pratz*, ii. 54.

M U S K. *Hist. Quad.* GENUS X.A. TIBET M. *Hist. Quad.* N° 54.—*Moschus, Pallas Sp. Zool. fasc. xiii. LEV. MUS.*

MUSK. With very sharp slender white tusks on each side of the upper jaw, hanging out far below the under jaw: ears rather large: neck thick: hair on the whole body long, upright, and thick set; each hair undulated; tips ferruginous; beneath them black; the bottoms cinereous: on each side of the front of the neck is a white line edged with black, meeting at the chest; another crosses that beneath the throat: limbs very slender, and of a full black: tail very short, and scarcely visible. The female wants the tusks and the musk-bag.

The musk-bag is placed on the belly, almost between the thighs. A full-grown male will yield a drachm and a half of musk; an old one two drachms.

SIZE.

The length of the male is two feet eleven; of the female, two feet three. The weight of a male from twenty-five to thirty pounds, Troy weight: of an old female, from thirty to thirty-five; but some young ones do not exceed eighteen.

PLACE.

Inhabits *Asia*, from lat. 20 to 60, or from the kingdoms of *Laos* and *Tong-King*, between *India* and *China*, and through the kingdom of *Tibet** as high as *Mangasea*. The river *Jenesei* is its western boundary, and it extends eastward as far as lake *Baikal*, and about the rivers *Lena* and *Witim*; but gradually narrows the extent of its residence as it approaches the tropic. Lives on the highest and rudest mountains, amidst the snows, or in the fir-woods which lie between them: goes usually solitary, except in autumn, when they collect in flocks to change their place: are excessively active, and take amazing

* Correct in p. 113, *Hist. Quad.* 9. 44 or 45, read 20.

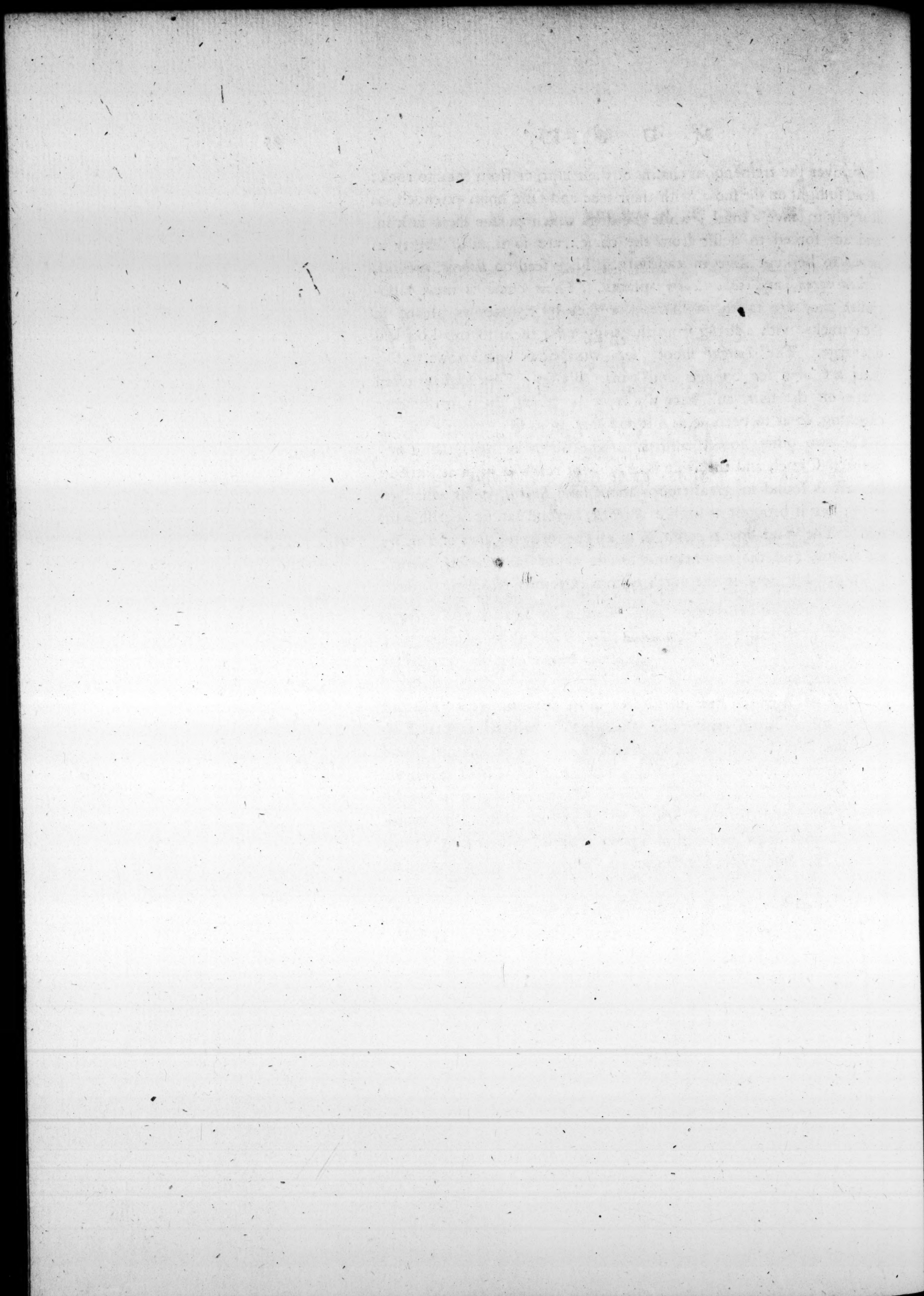
leaps over the tremendous chasms of their *alps*, or from rock to rock: tread so light on the snow, with their true and false hoofs extended, as scarcely to leave a mark; while the dogs which pursue them sink in, and are forced to desist from the chase: are so fond of liberty as never to be kept alive in captivity. They feed on *lichens*, *arbutus*, *rhododendron*, and *whortleberry*-plants. Their chase is most laborious: they are taken in snares; or shot by cross-bows placed in their tracks, with a string from the trigger for them to tread on and discharge. The *Tungusi* shoot them with bows and arrows. The skins are used for bonnets and winter dresses. The *Russians* often scrape off the hair, and have a way of preparing them for summer cloathing, so as to become as soft and shining as silk.

The two other hoofed animals of the north of *Asia*, the Two-bunched Camel, and the Wild Boar, do not reach as high as lat. 60: the first is found in great troops about lake *Baikal*, as far as lat. 56 or 57; but if brought as high as *Yakutsk*, beyond lat. 60, perish with cold*. The Wild Boar is common in all the reedy marshes of *Tartary* and *Siberia*, and the mountainous forests about lake *Baikal*, almost to lat. 55; but none in the north-eastern extremity of *Siberia*.

CAMEL.

WILD BOAR.

* *Zimmerman*, 357.



D I V. II.

DIGITATED QUADRUPEDS.

SECT. I. With CANINE TEETH.

DIV. II. Digitated Quadrupeds.

SECT I. With CANINE TEETH.

Rapacious, Carnivorous.

DOG.

HIST. QUAD. GENUS XVII.

9. WOLF.

Hist. Quad. N° 137.—Smellie, iv. 196.—LEV. MUS.

DOG. With a long head: pointed nose: ears sharp and erect: legs long: tail bushy, bending down: hair pretty long. Color usually of a pale brown, mixed with dull yellow and black.

Inhabits the interior countries south of *Hudson's Bay*; and from thence all *America*, as low as *Florida*. There are two varieties, a greater and a lesser. The first usually confines itself to the colder parts. The latter is not above fifteen inches high*. In the more uninhabited parts of the country, they go in great droves, and hunt the deer like a pack of hounds, and make a hideous noise. They will attack the Buffalo; but only venture on the stragglers. In the unfrequented parts of *America* are very tame, and will come near the few habitations in hopes of finding something to eat. They are often so very poor and hungry, for want of prey, as to go into a swamp and fill themselves with mud, which they will disgorge as soon as they can get any food.

COLOR.

The Wolves towards *Hudson's Bay* are of different colors; grey and white; and some black and white, the black hairs being mixed with the white chiefly along the back. In *Canada* they have been found entirely black†. They are taken in the northern parts in log-traps, or by spring-guns; their skins being an article of commerce.

In the LEVERIAN museum is the head and scull of a wolf: dusky and brown, formed by the natives into a helmet. The pro-

* Du Pratz, ii. 54.

† Smellie, iv. 212.

tection of the head was the natural and first thought of mankind; and the spoils of beasts were the first things that offered. *Hercules* seized on the skin of the Lion: the *Americans*, and ancient *Latians* that of the Wolf.

Fulvosque Lupi de pelle galeros
Tegmen habet capiti.

Wolves are now so rare in the populated parts of *America*, that the inhabitants leave their sheep the whole night unguarded: yet the governments of *Pensylvania* and *New Jersey* did some years ago allow a reward of twenty shillings, and the last even thirty shillings, for the killing of every Wolf. Tradition informed them what a scourge those animals had been to the colonies; so they wisely determined to prevent the like evil. In their infant state, wolves came down in multitudes from the mountains, often attracted by the smell of the corpses of hundreds of *Indians* who died of the small-pox, brought among them by the *Europeans*: but the animals did not confine their insults to the dead, but even devoured in their huts the sick and dying Savages*.

The Wolf is capable of being in some degree tamed and domesticated†. It was, at the first arrival of the *Europeans*, and is still in many places, the Dog of the *Americans*‡. It still betrays its savage descent, by uttering only a howl instead of the significant bark of the genuine Dog. This half-reclaimed breed wants the sagacity of our faithful attendant; and is of little farther use in the chase, than in frightening the wild beasts into the snares or traps,

Dog.

The *Kamtschatkans*, *Eskimaux*, and *Greenlanders*, strangers to the softer virtues, treat these poor animals with great neglect. The former, during summer, the season in which they are useless, turn them loose to provide for themselves; and recall them in *October* into their usual confinement and labor: from that time till spring they

* *Kalm*, i. 285.

† The same, 286. *Lawson*, 119.

‡ *Smith's Hist.*

Virginia, 27. *Crantz Greenland*, i. 74.

are

are fed with fish-bones and *opana*, i. e. putrid fish preserved in pits, and served up to them mixed with hot water. Those used for draught are castrated; and four, yoked to the carriage, will draw five poods, or a hundred and ninety *English* pounds, besides the driver; and thus loaden, will travel thirty versts, or twenty miles, a day; or if unloaden, on hardened snow, on sliders of bone, a hundred and fifty versts, or a hundred *English* miles*.

It is pretty certain that the *Kamtshatkan* Dogs are of wolfish descent; for Wolves abound in that country, in all parts of *Siberia*, and even under the *Arctic* circle. If their master is flung out of his sledge, they want the affectionate fidelity of the *European* kind, and leave him to follow, never stopping till the sledge is overturned, or else stopped by some impediment†. I am also strengthened in my opinion by the strong rage they have for the pursuit of deer, if on the journey they cross ‡ the scent; when the master finds it very difficult to make them pursue their way.

The great traveller of the thirteenth century, *Marco Polo*, had knowledge of this species of conveyance from the merchants who went far north to traffic for the precious furs. He describes the sledges; adds, that they were drawn by six great dogs; and that they changed them and the sledges on the road, as we do at present in going post||.

The *Kamtshatkans* make use of the skins of dogs for cloathing, and the long hair for ornament: some nations are fond of them as a food; and reckon a fat dog a great delicacy§. Both the *Asiatic* and *American* Savages use these animals in sacrifices to their gods¶, to bespeak favor, or avert evil. When the *Koreki* dread any infection,

* *Hist. Kamtschatka*, 107. 197.

† The same, 107.

‡ The same.—There is a variety of black wolves in the *Vekroturian* mountains. The she-wolves have been successfully coupled with dogs in some noblemen's parks about *Moscow*.

|| In *Bergeron*, 160.

§ *Hist. Kamtschatka*, 231. The *Americans* do the same,

Drage, i. 216.

¶ *Hist. Kamtsch.* 226. *Drage*, ii. 41.

W O L F.

41

they kill a dog, wind the intestines round two poles, and pass between them.

The *Greenlanders* are not better masters. They leave their dogs to feed on mussels or berries; unless in a great capture of seals, when they treat them with the blood and garbage. These people also sometimes eat their dogs: use the skins for coverlets, for cloathing, or to border and seam their habits: and their best thread is made of the guts. GREENLAND.

The Dogs in general are large; and, in the frigid parts at least, have the appearance of Wolves: are usually white, with a black face; sometimes varied with black and white, sometimes all white; rarely brown, or all black: have sharp noses, thick hair, and short ears: and seldom bark; but set up a sort of growl, or savage howl. They sleep abroad; and make a lodge in the snow, lying with only their noses out. They swim most excellently: and will hunt, in packs, the ptarmigan, arctic fox, polar bear, and seals lying on the ice. The natives sometimes use them in the chase of the bear. They are excessively fierce; and, like wolves, instantly fly on the few domestic animals introduced into *Greenland*. They will fight among themselves, even to death. Canine madness is unknown in *Greenland* *. They are to the natives in the place of horses: the *Greenlanders* fasten to their sledges from four to ten; and thus make their visits in savage state, or bring home the animals they have killed. *Egede* says that they will travel over the ice fifteen *German* miles in a day, or sixty *English*, with sledges loaden with their masters and five or six large seals †.

Those of the neighboring island of *Iceland* have a great resemblance to them. As to those of *Newfoundland*, it is not certain that there is any distinct breed: most of them are curs, with a cross of the mastiff: some will, and others will not, take the water, absolutely refusing to go in. The country was found uninhabited, which makes it more probable that they were introduced by the *Europeans*;

ICELAND.

* *Faun. Greenl.* p. 19.

† *Egede*, 63. *Crantz*, i. 74.

G

who

they

who use them, as the factory does in *Hudson's Bay*, to draw firing from the woods to the forts.

The Savages who trade to *Hudson's Bay* make use of the wolfish kind to draw their furs.

It is singular, that the race of *European Dogs* shew as strong an antipathy to this *American* species, as they do to the Wolf itself. They never meet with them, but they shew all possible signs of dislike, and will fall on and worry them; while the wolfish breed, with every mark of timidity, puts its tail between its legs, and runs from the rage of the others. This aversion to the Wolf is natural to all genuine Dogs: for it is well known that a whelp, which has never seen a wolf, will at first sight tremble, and run to its master for protection: an old dog will instantly attack it.

I shall conclude this article with an abstract of a letter from Dr. *Pallas*, dated *October 5th 1781*; in which he gives the following confirmation of the mixed breed of these animals and Dogs.

" I have seen at *Moscow* about twenty spurious animals from dogs
 " and black wolves. They are for the most part like wolves, except
 " that some carry their tails higher, and have a kind of coarse bark-
 " ing. They multiply among themselves: and some of the whelps
 " are greyish, rusty, or even of the whitish hue of the Arctic wolves:
 " and one of those I saw, in shape, tail, and hair, and even in bark-
 " ing, so like a cur, that, was it not for his head and ears, his ill-
 " natured look, and fearfulness at the approach of man, I should
 " hardly have believed that it was of the same breed."

10. ARCTIC.

Arctic Fox, *Hist. Quad. N°* —LEV. MUS.

DOG. With a sharp nose: ears almost hid in the fur, short and rounded: hair long, soft, and silky: legs short: toes covered above and below with very thick and soft fur: tail shorter than that of the common Fox, and more bushy.

Inferior in size to the common Fox: color a blueish-grey, and sometimes

A R C T I C F O X.

43

sometimes white. The young, before they come to maturity, dusky. The hair, as usual in cold regions, grows much thicker and longer in winter than summer.

These animals are found only in the Arctic regions, a few degrees within and without the Polar circle. They inhabit *Spitzbergen*, *Greenland*, and *Iceland**: are only migratory in *Hudson's Bay*, once in four or five years †: are found again in *Bering's* and ‡ *Copper Isle*, next to it; but in none beyond: in *Kamtchatka*, and all the countries bordering on the frozen sea, which seems their great residence; comprehending a woodless tract of heath land, generally from 70 to 65 degrees lat. They abound in *Nova Zembla* ||: are found in *Cherry* island, midway between *Finmark* and *Spitzbergen* §, to which they must have been brought on islands of ice; for it lies above four degrees north of the first, and three south of the last: and lastly, in the bare mountains between *Lapland* and *Norway*.

They are the hardiest of animals, and even in *Spitzbergen* and *Nova Zembla* prowl out for prey during the severity of winter. They live on the young wild geese, and all kind of water-fowl; on their eggs; on hares, or any lesser animals; and in *Greenland*, (through necessity) on berries, shell-fish, or whatsoever the sea throws up. But in the north of *Asia*, and in *Lapland*, their principal food is the *Lemings* ¶. The Arctic foxes of those countries are as migratory as those little animals; and when the last make their great migrations, the latter pursue them in vast troops. But such removals are not only uncertain, but long: dependent on those of the *Leming*. The Foxes will at times desert their native countries for three or four years, probably as long as they can find any prey. The people of *Jenisea* imagine, that the wanderers from their parts go to the banks of the *Oby*.

* *Egede*, 62. *Marten's Spitzb.* 100. *Horrebow's Iceland*, 43. † *Mr. Graham*.
‡ *Muller's Col. voy.* 53. || *Heemskirk's voy.* 34. § *Purchas*, iii. 559.

¶ Of which I apprehend there are two species—the *Lapland*, *Hist. Quad.* N° 317, and the *Mus Migratorius* of *Pallas*, or *Yaik Rat*, *Hist. Quad.* N° 326. which inhabits the country near the *Yaik*.

ARCTIC FOX.

Those found on *Bering's* and *Copper* isles were probably brought from the *Asiatic* side on floating ice: *Steller* having seen in the remoter islands only the black and brown foxes: and the same only on the continent of *America*. They burrow in the earth, and form holes many feet in length; strewing the bottom with moss. But in *Spitzbergen* and *Greenland*, where the ground is eternally frozen, they live in the cliffs of rocks: two or three inhabit the same hole. They swim well, and often cross from island to island in search of prey. They are in heat about *Lady-day*; and during that time continue in the open air: after that, retreat to their earths. Like dogs, continue united in copulation: bark like them: for which reason the *Russians* call them *Peszi*. They couple in *Greenland* in *March*, and again in *May*; and bring forth in *April* and in *June**.

They are tame and inoffensive animals; and so simple, that there are instances of their standing by when the trap was baiting, and instantly after putting their heads into it. They are killed for the sake of their skins, both in *Asia* and *Hudson's Bay*: the fur is light and warm, but not durable. Mr. *Graham* informed me, that they have appeared in such numbers about the fort, that he has taken, in different ways, four hundred from *December* to *March*. He likewise assured me, that the tips of their tails are always black; those of the common foxes always white: and that he never could trace the breeding-places of the former.

The *Greenlanders* take them either in pitfalls dug in the snow, and baited with the *Capelin* fish; or in springs made with whale-bone, laid over a hole made in the snow, strewed over at bottom with the same kind of fish; or in traps made like little huts, with flat stones, with a broad one by way of door, which falls down (by means of a string baited on the inside with a piece of flesh) whenever the fox enters and pulls at it†. The *Greenlanders* preserve the skins for traffic; and in cases of necessity eat the flesh. They also make

* *Faun. Groenl.* 20.

† *Crantz*, i. 72.

buttons of the skins: and split the tendons, and make use of them instead of thread. The blue furs are much more esteemed than the white.

European Fox, *Hist. Quad.* N° 139.—*Smellie*, iv. 214.—*Lev. Mus.*

LI. EUROPEAN:

DOG. With a pointed nose: pointed erect ears: body of a tawny red, mixed with ash-color: fore part of the legs black: tail long and bushy, tip with white.

Inhabits the northern parts of *North America* from *Hudson's Bay*, probably across the continent to the islands intermediate between *America* and *Kamtschatka*. Captain *Bering* saw there five quite tame, being unused to the sight of man.

This species gradually decreases to the southward, in numbers and in size: none are found lower than *Pennsylvania*. They are supposed not to have been originally natives of that country. The *Indians* believe they came from the north of *Europe* in an excessive hard winter, when the season was frozen. The truth seems to be, that they were driven in some severe season from the north of their own country, and have continued there ever since. They abound about *Hudson's Bay*, the *Labrador* country, and in *Newfoundland* and *Canada*; and are found in *Iceland**. They burrow as the *European* foxes do; and in *Hudson's Bay*, during winter, run about the woods in search of prey, feeding on birds and lesser animals, particularly mice.

New England is said to have been early stocked with foxes by a gentleman who imported them from *England*, for the pleasure of the chase†; and that the present breed sprung from the occasion. This species is reckoned among the pernicious animals, and, being very destructive to lambs, are proscribed at the rate of two shillings a head.

The variety of *British* fox, with a black tip to the tail, seems unknown in *America*.

* *Olafron*, i. 31.

† *Kalm*, i. 283.

EUROPEAN, BLACK, AND CROSS FOX.

The skins are a great article of commerce: abundance are imported annually from *Hudson's Bay* and *Newfoundland*. The natives of *Hudson's Bay* eat the flesh, rank as is it is.

This species abounds in *Kamtschatka*, and is the finest red fur of any known: grows scarce within the Arctic circle of the *Asiatic* regions, and is found there often white.

a BLACK.

THIS variety is found very often entirely black, with a white tip to the tail; and is far inferior in value and beauty to those of *Kamtschatka* and *Siberia*, where a single skin sells for four hundred rubles.

The best in *North America* are found on the *Labrador* side of *Hudson's Bay*. They are also very common on the islands opposite to *Kamtschatka*. The *American* black foxes, which I have examined, are frequently of a mixed color: from the hind part of the head to the middle of the back is a broad black line: the tail, legs, and belly, black: the hairs on the face, sides, and lower part of the back, cinereous; their upper ends; black the tip white.

B CROSS.

FOX. With a bed of black running along the top of the back, crossed by another passing down each shoulder; from whence it took the name. The belly is black: the color of the rest of the body varies in different skins; but in all is a mixture of black, cinereous, and yellow: the fur in all very soft: and the tail very bushy and full of hair; for nature, in the rigorous climate of the North, is ever careful to guard the extremities against the injury of cold.

This is likewise a very valuable variety. It is remarked, that the more desirable the fur is, the more cunning and difficult to be taken is the fox which owns it*. The *Cossacks* quartered in *Kamtschatka* have attempted for two winters to catch a single black fox. The Cross-fox, *vulpes crucigera* of *Gesner*, and *Kors-raef* of the *Swedes* †, is found in all the Polar countries.

* *Hist. Kamtschatka*, 95. † *Gesner Quad.* 967. *Faun. Suec.* N° 4.

In the new-discovered *Fox islands* these animals abound: one in three or four are found entirely black, and larger than any in *Siberia*: the tail also is tipped with white. But as they live among the rocks, there being no woods in those islands, their hair is almost as coarse as that of the Wolf, and of little value compared to the *Siberian*.

Brant Fox, *Hist. Quad.* p. 235.

γ BRANT.

FOX. With a very sharp and black nose: space round the ears ferruginous: forehead, back, shoulders, sides, and thighs, red, cinereous, and black: the ash-color predominates, which gives it a hoary look: belly yellowish: tail black above, cinereous on the sides, red beneath.

About half the size of the common fox. Described from one Mr. Brooks received from *Pennsylvania*, under the name of *Brandt-fox*; but it had not that bright redness to merit the name of either *Brandt-fuchse*, or *Brand-raef*, given by *Gesner* and *Linnaeus*.

Corsak Fox, *Hist. Quad.* p. 236.

δ CORSAK.

FOX. With upright ears: yellowish-green irides: throat white: color, in summer, pale tawny; in winter, cinereous: middle of the tail cinereous; base and tip black; the whole very full of hair: the fur is coarser and shorter than that of the common fox.

I discovered this species among the drawings of the late *Taylor White, Esq.* who informed me that it came from *North America*. I imagine, from *Hudson's Bay*.

This species is very common in the hilly and temperate parts of *Tartary*, from the *Don* to the *Amur*; but never is found in woody places: it burrows deep beneath the surface. It is also said to inhabit the banks of the rivers *Indigisky* and *Anadyr*, where the hills grow bare. In the rest of *Siberia* it is only known beyond lake *Baikal*; and from skins brought by the *Kirghisian* and *Bucharian* traders. In *Russia* it is found in the deserts towards *Crimea* and *Astracan*, and also on the southern end of the *Urallian* mountains.

Grey.

12. GREY.

Grey Fox, *Hist. Quad.* N° 142.

FOX. With a sharp nose: long sharp upright ears: long legs: color entirely grey, except a little redness about the ears.

Inhabits from *New England* to the southern end of *North America*; but are far more numerous in the southern colonies. They have not the rank smell of the red foxes. They are also less active, and grow very fat*. They breed in hollow trees: give no diversion to the sportsmen, for after a mile's chase they run up a tree†. They feed on birds; are destructive to poultry; but never destroy lambs‡. The skins are used to line clothes: the fur is in great request among the hatters. The grease is reckoned efficacious in rheumatic disorders.

13. SILVERY.

Silvery Fox, *Hist. Quad.* N° 143.

FOX. With a fine and thick coat of a deep brown color, overspread with long silvery hairs of a most elegant appearance.

Inhabits *Louisiana*, where their holes are seen in great abundance on the woody heights. As they live in forests, which abound in game, they never molest the poultry, so are suffered to run at large§.

They differ specifically from the former, more by their nature in burrowing, than in colors.

* *Lawson*, 125.† *Catesby*, ii. 78. *Jesselyn*, 82.‡ *Kalm*, i. 282.§ *Du Pratz*, ii. 64. *Charlevoix*, v. 196.

HIST. QUAD. GENUS XIX.

CAT.

Hist. Quad. N° 160.—*Smellie*, v. 197. 200.—*LEV. MUS.*

14. PUMA.

CAT. With a small head: large eyes: ears a little pointed: chin white: back, neck, sides, and rump, of a pale brownish red, mixed with dusky hairs: breast, belly, and inside of the legs, cinereous: tail a mixture of dusky and ferruginous, the tip black.

The teeth of a vast size: claws whitish; the outmost claw of the fore feet much larger than the rest: the body very long: the legs high and strong. The length of that I examined was five feet three from head to tail; of the tail, two feet eight.

Inhabits the continent of *North America*, from *Canada* to *Florida*; and the species is continued from thence low into *South America*, through *Mexico*, *Guiana*, *Brasil*, and the province of *Quito*, in *Peru*, where it is called *Puma*, and by the *Europeans* mistaken for a *Lion*: it is, by reason of its fierceness, the scourge of the country. The different climate of *North America* seems to have subdued its rage, and rendered it very fearful of mankind: the least cur, in company with his master, will make it run up a tree*, which is the opportunity of shooting it. It proves, if not killed outright, a dangerous enemy; for it will descend, and attack either man or beast. The flesh is white, and reckoned very good. The *Indians* use the skin for winter habits; and when dressed is made into shoes for women, and gloves for men†.

It is called in *North America* the Panther, and is the most pernicious animal of that continent. Lives in the forests. Sometimes purs, at other times makes a great howling. Is extremely destructive to do-

* *Catesby*, App. xxv.† *Lawson*, 118.

H

mestic

mestic animals, particularly to hogs. It preys also upon the Moose, and other deer; falling on them from the tree it lurks in, and never quits its hold*. The deer has no other way of saving itself, but by plunging into the water, if there happens to be any near; for the Panther, like the Cat, detests that element. It will feed even on beasts of prey. I have seen the skin of one which was shot, just as it had killed a wolf. When it has satisfied itself with eating, it carefully conceals the rest of the carcase, covering it with leaves. If any other animal touches the reliques, it never touches them again.

15. LYNX.

Hist. Quad. N° 170.—Smellie, v. 207, 217.—Lévy. Mus.

CAT. With pale yellow eyes: ears erect, tufted with black long hair: body covered with soft and long fur, cinereous tinged with tawny, and marked with dusky spots, more or less visible in different subjects, dependent on the age, or season in which the animal is killed: the legs strong and thick: the claws large. About three times the size of a common Cat: the tail only four inches long, tipped with black.

Inhabits the vast forests of *North America*: is called in *Canada*, *Le Chat*, ou *Le Loup-cervier* †, on account of its being so destructive to deer; which it drops on from the trees, like the former, and, fixing on the jugular vein, never quits its hold till the exhausted animal falls through loss of blood ‡.

The *English* call it a Wild Cat. It is very destructive to their young pigs, poultry, and all kind of game. The skins are in high esteem for the softness and warmth of the fur; and great numbers are annually imported into *Europe*.

* *Charlevoix*, v. 189, who by mistake calls it *Carcajon*, and *Kincajon*; two very different animals. † *Charlevoix*, v. 195. ‡ *Lauson*, 118. *Catesby*, App. xxv.

BAY LYNX.

51

Bay Lynx. *Hist. Quad.* N° 171.

16. BAY.

CAT. With yellow irides: ears like the former: color of the head, body, and outside of the legs and thighs, a bright bay, obscurely marked with dusky spots: the forehead marked with black stripes from the head to the nose: cheeks white, varied with three or four incurvated lines of black: the upper and under lip, belly, and insides of the legs and thighs, white: the inside of the upper part of the fore legs crossed with two black bars: the tail short; the upper part marked with dusky bars, and near the end with one of black; the under side white. In size, about twice that of a common Cat; the fur shorter and smoother than that of the former.

This species is found in the internal parts of the province of *New York*. I saw one living a few years ago in *London*. The black bars on the legs and tail are specific marks.

Hist. Quad. N° 163.

17. MOUNTAIN.

Cat-a-mountain? *Lawson*, 118. *Du Pratz*, ii. 64.

CAT. With upright pointed ears, marked with two brown bars: head and upper part of the body of a reddish brown, with long narrow stripes of black: the sides and legs with small round spots: chin and throat of a clear white: belly of a dull white: tail eight inches long, barred with black. Length from nose to tail two feet and a half.

SIZE.

Inhabits *North America*. Is said to be a gentle animal, and to grow very fat. Described originally in the *Memoires de l'Academie*; since which an account of another, taken in *Carolina*, was communicated by the late Mr. *Collinson* to the Count *de Buffon**. The only difference is in size; for the last was only nineteen inches long: the tail four; but the same characteristic stripes, spots, and bars, on the tail, were similar in both.

* *Supplem.* iii. 227.

OBSCURE SPECIES.

There still remain undescribed some animals of the Feline race, which are found in *North America*, but too obscurely mentioned by travellers to be ascertained. Such is the beast which *Lawson* saw to the westward of *Carolina*, and calls a Tiger. He says it was larger than the Panther, i. e. *Puma*, and that it differed from the Tiger of *Asia* and *Africa**. It possibly may be the *Brasilian* Panther, *Hist. Quad.* N° 158, which may extend further north than we imagine. It may likewise be the Cat-a-mount of *Du Pratz*†; which, he says, is as high as the Tiger, i. e. *Puma*, and the skin extremely beautiful.

The *Pijoux* of *Louisiana*, mentioned by *Charlevoix*‡, are also obscure animals. He says they are very like our Wild Cats, but larger: that some have shorter tails, and others longer. The first may be referred to one of the three last species: the last may be our *Cayenne* Cat, N° 163.



Domestic Cats are kept in *Iceland* and *Norway*§. Some of them escape and relapse to a savage state. In *Iceland* those are called *Urda-kelter*, because they live under rocks and loose stones, where they hide themselves. They prey on small birds. The most valuable of their skins are sold for twelve *Danish* skillings, or six pence a-piece. *Linnaeus*, speaking of the cats of *Sweden*, says, they are of exotic origin||. They are not found wild either in that kingdom, or any part of the *Russian* dominions. Unknown in *America*.

* *Hist. Carolina*, 119.

† ii. 64. I wish to suppress the synonym of *Cat-a-mount*, as applied to the *Cayenne* Cat, as it seems applicable to a much larger species.

‡ *Hist. de le Nouv. France*, vi. 158.

ii. 8.

|| *Faun. Suec.* N° 9.

§ *Oluf. Iceland*, i. Paragr. 80. *Pontop.*

HIST. QUAD. GENUS XX.

BEAR.

Hist. Quad. N° 175.—LXX. MUS.

18. POLAR.

BEAR. With a long narrow head and neck: tip of the nose black: teeth of a tremendous magnitude: hair of a great length, soft, and white, and in part tinged with yellow: limbs very thick and strong: ears short and rounded.

Travellers vary about their size. *De Buffon* quotes the authority of *Gerard le Ver** for the length of one of the skins, which, he says, was twenty-three feet. This seems to be extremely misrepresented; for *Gerard*, who was a companion of the famous *Barentz*, and *Heemskirk*, a voyager of the first credit, killed several on *Nova Zembla*, the largest of which did not exceed thirteen feet in length†. They seem smaller on *Spitzbergen*: one measured by order of a noble and able navigator‡, in his late voyage towards the Pole, was as follows: I give all the measurements to ascertain the proportions.

	Feet.	Inches.
Length from snout to tail	7	1
from snout to shoulder-bone	2	3
Height at the shoulder	4	3
Circumference near the fore legs	7	0
of the neck near the ear	2	1
Breadth of the fore-paw	0	7
Weight of the carcase without the head, skin, or entrails	610	lb.

This species, like the Rein and Arctic Fox, almost entirely surrounds the neighborhood of the Polar circle. It is found within it,

PLACE.

* *De Buffon*, Suppl. iii. 200.† See *Le Ver*, p. 14. ed. 1606. *Amsteld.*‡ The Honorable *Constantine John Phipps*, now Lord *Mulgrave*.

far.

far as navigators have penetrated; in the island of *Spitzbergen*, and within *Baffin's Bay*; in *Greenland* and *Hudson's Bay*; in *Terra di Labrador**; and, by accident, wafted from *Greenland*, on islands of ice, to *Iceland* and *Newfoundland*. It perhaps attends the course of the Arctic circle along the vast regions of *America*; but it is unknown in the groupes of islands between that continent and *Asia*; neither is it found on the *Tchukki Noss*, or the Great Cape, which juts into the sea north of *Kamtschatka*†. None are ever seen in that country. But they are frequent on all the coasts of the Frozen Ocean, from the mouth of the *Ob*‡, eastward; and abound most about the estuaries of the *Jenesei* and *Lena*. They appear about those savage tracts, and abound in the unfrequented islands of *Nova Zembla*, *Cherry*, and *Spitzbergen*, where they find winter quarters undisturbed by mankind. The species is happily unknown along the shores of the White sea, and those of *Lapland* and *Norway*. Possibly even those rigorous climates may be too mild for animals that affect the utmost severity of the Arctic zone. They never are seen farther south in *Siberia* than *Mangasea*, nor wander into the woolly parts, unless by accident in great mists.

They are sometimes brought alive into *England*. One which I saw was always in motion, restless, and furious, roaring in a loud and hoarse tone; and so impatient of warmth, that the keeper was obliged to pour on it frequently pailfuls of water. In a state of nature, and in places little visited by mankind, they are of dreadful ferocity. In *Spitzbergen*, and the other places annually frequented by the human race, they dread its power, having experienced its superiority, and shun the conflict: yet even in those countries prove tremendous enemies, if attacked or provoked.

Barentz, in his voyages in search of a north-east passage to *China*, had fatal proofs of their rage and intrepidity on the island of *Nova Zembla*: his seamen were frequently attacked, and some of them

* *Phil. Trans.* lxiv. 377.
iii. 805.

† *Muller*, Pref. xxv.

‡ *Purchas's Pilgrims*,

killed.

killed. Those whom they seized on they took in their mouths, ran away with the utmost ease, tore to pieces, and devoured at their leisure, even in sight of the surviving comrades. One of these animals was shot preying on the mangled corpse, yet would not quit its hold; but continued staggering away with the body in its mouth, till dispatched with many wounds*.

They will attack, and attempt to board, armed vessels far distant from shore; and have been with great difficulty repelled †. They seem to give a preference to human blood; and will greedily dis-inter the graves of the buried, to devour the cadaverous contents ‡.

Food.

Their usual food is fish, seals, and the carcases of whales. On land, they prey on deer ||, hares, young birds, and eggs, and often on whortleberries and crowberries. They are at constant enmity with the Walrus, or Morse: the last, by reason of its vast tusks, has generally the superiority; but frequently both the combatants perish in the conflict §.

They are frequently seen in *Greenland*, in lat. 76, in great droves; where, allured by the scent of the flesh of seals, they will surround the habitations of the natives, and attempt to break in ¶; but are soon driven away by the smell of burnt feathers**. If one of them is by any accident killed, the survivors will immediately eat it ††.

They grow excessively fat; a hundred pounds of fat has been taken out of a single beast. Their flesh is coarse, but is eaten by the seamen: it is white, and they fancy it tastes like mutton. The liver is very unwholesome, as three of *Heemskirk's* sailors experienced, who fell dangerously ill on eating some of it boiled ‡‡. The skin is an article of commerce: many are imported, and used chiefly for covers to coach-boxes. The *Greenlanders* feed on the flesh and fat; use the skins to sit on, and make of it boots, shoes, and gloves; and split the tendons into thread for sewing.

* *Heemskirk's voy.* 14.

† The same, 18.

‡ *Martin's Spitzb.* 102.

|| *Faun. Groenl.* p. 23.

§ *Egede*, 83.

¶ The same, 60.

** *Faun.*

Groenl. p. 23.

†† *Heemskirk*, 51.

‡‡ The same, 45.

During

During summer they reside chiefly on islands of ice, and pass frequently from one to the other. They swim most excellently, and sometimes dive, but continue only a small space under water. They have been seen on islands of ice eighty miles from any land, preying and feeding as they float along. They lodge in dens formed in the vast masses of ice, which are piled in a stupendous manner, leaving great caverns beneath: here they breed, and bring one or two at a time, and sometimes, but very rarely, three. Great is the affection between parent and young; they will sooner die than desert one another*. They also follow their dams a very long time, and are grown to a very large size before they quit them.

During winter they retire, and bed themselves deep beneath, forming spacious dens in the snow, supported by pillars of the same, or to the fixed ice beneath some eminence; where they pass torpid the long and dismal night †, appearing only with the return of the sun ‡. At their appearance the *Arctic* Foxes retire to other haunts §.

The Polar Bear became part of the royal menagery as early as the reign of *Henry III.* Mr. *Walpole* has proved how great a patron that despised prince was of the Arts. It is not less evident that he extended his protection to Natural History. We find he had procured a White Bear from *Norway*, from whence it probably was imported from *Greenland*, the *Norwegians* having possessed that country for some centuries before that period. There are two writs extant from that monarch, directing the sheriffs of *London* to furnish six pence a day to support our White Bear in our Tower of *London*; and to provide a muzzle and iron chain to hold him when out of the water; and a long and strong rope to hold him, when he was fishing in the *Thames* §. Fit provision was made at the same time for the king's Elephant.

* *Marten's Spitzb.* 102.

† *Egede*, 60. *Martens* says, that the fat is used in pains of the limbs, and that it assists parturition.

‡ *Heemskirk's voy. in Purchas*, iii. 500, 501. § The same, 499. § *Madox's Antiquities of the Exchequer*, i. 376.

The skins of this species, in old times, were offered by the hunters to the high altars of cathedrals, or other churches, that the priest might stand on them, and not catch cold when he was celebrating high mass in extreme cold weather. Many such were annually offered at the cathedral at *Drontheim* in *Norway*; and also the skins of wolves, which were sold to purchase wax lights to burn in honor of the saints*.

Hist. Quad. N° 174.—Smellie, v. 19.

19. BLACK.

BEAR. With a long pointed nose, and narrow forehead: the cheeks and throat of a yellowish brown color: hair over the whole body and limbs of a glossy black, smoother and shorter than that of the *European* kind.

They are usually smaller than those of the old world; yet Mr. *Bartram* gives an instance of an old he-bear killed in *Florida* which was seven feet long, and, as he guessed, weighed four hundred pounds †.

These animals are found in all parts of *North America*, from *Hudson's Bay* to the southern extremity; but in *Louisiana* and the southern parts they appear only in the winter, migrating from the north in search of food. They spread across the northern part of the *American* continent to the *Kamtschatkan* sea. They are found again in the opposite country ‡, and in the *Kurilski* islands, which intervene between *Kamtschatka* and *Japan* §, *Jeso Masima*, which lies north of *Japan* §, and probably *Japan* itself; for *Kämpfer* says, that a few small bears are found in the northern provinces ¶.

It is very certain that this species of bear feeds on vegetables. *Du Pratz*, who is a faithful as well as intelligent writer, relates, that

FOOD.

* *Olaus Magnus*, lib. xviii. c. 20.

† *Hist. Kamtsch.* iii. 385.

‡ Journal of his travels into *East Flo-*

rida, 26. ¶ The same, 287.

§ *Voy. au Nord.* iv. 5.

¶ *Hist. Japan*, i. 126.

in one severe winter, when these animals were forced in multitudes from the woods, where there was abundance of animal food, they rejected that, notwithstanding they were ready to perish with hunger; and, migrating into the lower *Louisiana*, would often break into the courts of houses. They never touched the butchers meat which lay in their way, but fed voraciously on the corn or roots they met with*.

Necessity alone sometimes compels them to attack and feed on the swine they meet in the woods: but flesh is to them an unnatural diet. They live on berries, fruits, and pulse of all kinds; are remarkably fond of potatoes, which they very readily dig up with their great paws; make great havock in the fields of maize; and are great lovers of milk and honey. They feed much on herrings, which they catch in the season when those fish come in shoals up the creeks, which gives their flesh a disagreeable taste; and the same effect is observed when they eat the bitter berries of the *Tupelo*.

They are equally inoffensive to mankind, provided they are not irritated; but if wounded, they will turn on their assailant with great fury, and, in case they can lay hold, never fail of hugging him to death; for it has been observed they never make use, in their rage, of either their teeth or claws. If they meet a man in a path they will not go out of his way; but will not attack him. They never seek combat. A small dog will make them run up a tree.

The bears of *Kamtschatka* resemble those of *America*: they are neither large nor fierce. They also wander from the hills to the lower lands in summer, and feed on berries and fish. They reject carnivorous food, nor ever attack the inhabitants, unless they find them asleep, when, through wantonness, they bite them severely, and sometimes tear a piece of flesh away; yet, notwithstanding they get a taste of human blood, are never known to devour mankind. People thus injured are called *Dranki* †, or the *flayed*.

The *American* bears do not lodge in caves or clefts of rocks, like those of *Europe*. The bears of *Hudson's Bay* form their dens beneath

* *Du Pratz*, ii. 57.

† *Hist. Kamtschatka*, iii. 386.

the snow, and suffer some to drop at the mouth, to conceal their retreat.

The naturalist's poet, with great truth and beauty, describes the retreat of this animal in the frozen climate of the north :

There through the piny forest half absorpt,
Rough tenant of those shades, the shapeless BEAR,
With dangling ice all horrid, stalks forlorn ;
Slow pac'd, and sower as the storms increase,
He makes his bed beneath th' inclement drift,
And with stern patience, scorning weak complaint,
Hardens his heart against affailing want.

Those of the southern parts dwell in the hollows of antient trees. The hunter discovers them by striking with an ax the tree he suspects they are lodged in, then suddenly conceals himself. The Bear is immediately roused, looks out of the hollow to learn the cause of the alarm ; seeing none, sinks again into repose *. The hunter then forces him out, by flinging in fired reeds ; and shoots him while he descends the body of the tree, which, notwithstanding his awkward appearance, he does with great agility ; nor is he less nimble in ascending the tops of the highest trees in search of berries and fruits.

The long time which these animals subsist without food is amazing. They will continue in their retreat for six weeks without the least provision, remaining either asleep or totally inactive. It is pretended that they live by sucking their paws ; but that is a vulgar error. The fact is, they retire immediately after autumn, when they have fattened themselves to an excessive degree by the abundance of the fruits which they find at that season. This enables animals, which perspire very little in a state of rest, to endure an abstinence of uncommon length. But when this internal support is exhausted, and they begin to feel the call of hunger, on the approach of the severe season, they quit their dens in search of food. Multitudes

* *Du Roin, ii. 61.*

then migrate into the lower parts of *Louisiana*: they arrive very lean; but soon fatten with the vegetables of that milder climate*. They never wander far from the banks of the *Mississipi*, and in their march form a beaten path like the track of men.

Lawson and *Catesby*† relate a very surprizing thing in respect to this animal, which is, that neither *European* or *Indian* ever killed a Bear with young. In one winter were killed in *Virginia* five hundred bears, and among them only two females; and those not pregnant. The cause is, that the male has the same unnatural dislike to its offspring as some other animals have: they will kill and devour the cubs. The females therefore retire, before the time of parturition, into the depth of woods and rocks, to elude the search of their savage mates. It is said that they do not make their appearance with their young till *March*‡.

All who have tasted the flesh of this animal say, that it is most delicious eating: a young Bear, fattened with the autumnal fruits, is a dish fit for the nicest epicure. It is wholesome and nourishing, and resembles pork more than any other meat. The tongue and the paws are esteemed the most exquisite morsels; the hams are also excellent, but apt to rust, if not very well preserved.

Four inches depth of fat has been found on a single Bear, and fifteen or sixteen gallons of pure oil melted from it§. The fat is of a pure white, and has the singular quality of never lying heavy on the stomach, notwithstanding a person drank a quart of it||. The *Americans* make great use of it for frying their fish. It is besides used medicinally, and has been found very efficacious in rheumatic complaints, aches, and strains.

The *Indians* of *Louisiana* prepare it thus:—As soon as they have killed the Bear, they shoot a Deer; cut off the head, and draw the skin entire to the legs, which they cut off: they then stop up every orifice, except that on the neck, into which they pour the melted fat

* *Du Pratz*, ii. 60.

voy: 91.

† *Lawson*, 117. *Catesby*, App. xxvi.

§ *Bartram's journ. E. Florida*, 26.

|| *Lawson*, 116.

‡ *Jesselyn's*

of the Bear; which is prepared by boiling the fat and flesh together. This they call a *Deer of oil*, and sell to the *French* for a gun, or something of equal value*.

Bears grease is in great repute in *Europe* for its supposed quality of making the hair to grow on the human head. A great chymist in the *Haymarket* in *London* used to fatten annually two or three Bears for the sake of their fat.

The skin is in use for all purposes which the coarser sorts of furs are applied to: it serves in *America*, in distant journies, for coverlets; and the finer parts have been in some places used in the hat manufacture †.

The *Indians* of *Canada* daub their hands and face with the grease, to preserve them from the bite of musketoes: they also smear their bodies with the oil after excessive exercise ‡. They think, like the *Romans* of old, that oil supple their joints, and preserves them in full activity.

Black Bear, *Hist. Quad.* N° 174.—*Smellie*, v. 19.

20. BROWN.

BEAR. With long shaggy hair, usually dusky or black, with brown points; liable to vary, perhaps according to their age, or some accident, which does not create a specific difference.

α. A variety of a pale brown color, whose skins I have seen imported from *Hudson's Bay*. The same kind, I believe, is also found in *Europe*. The cubs are of a jetty black, and their necks often encircled with white.

β. Bears spotted with white.

γ. Land Bears, entirely white. Such sometimes fall from the lofty mountains which border on *Siberia*, and appear in a wandering manner in the lower parts of the country ||. *Marco Polo* relates, that they were frequent in his time in the north of *Tartary*, and of a very great size.

* *Du-Roi*, ii. 62. † *Lawson*, 117. ‡ *Kalm*, iii. 13. || *Dor* *Pallas*.

8. Grizzly Bears. These are called by the *Germans Silber-bar*, or the *Silver-bear*, from the mixture of white hairs. These are found in *Europe*, and the very northern parts of *North America*, as high as lat. 70; where a hill is called after them, *Grizzle Bear Hill*, and where they breed in caverns*. The ground in this neighborhood is in all parts turned by them in search of the hoards formed by the Ground Squirrels for winter provision.

All these varieties form but one species. They are granivorous and carnivorous, both in *Europe* and *America*; and I believe, according to their respective palates or habits, one may be deemed a variety which prefers the vegetable food; another may be distinguished from its preference of animal food. Mr. *Graham* assures me, that the brown Bears, in the inland parts of *Hudson's Bay*, make great havoc among the *Buffaloes*: are very large, and very dangerous when they are attacked and wounded.

BEARS VENERATED
IN AMERICA.

In all savage nations the Bear has been an object of veneration. Among the *Americans* a feast is made in honor of each that is killed. The head of the beast is painted with all colors, and placed on an elevated place, where it receives the respects of all the guests, who celebrate in songs the praises of the Bear. They cut the body in pieces, and regale on it, and conclude the ceremony †.

CHASE.

The chase of these animals is a matter of the first importance, and never undertaken without abundance of ceremony. A principal warrior first gives a general invitation to all the hunters. This is followed by a most serious fast of eight days, a total abstinence from all kinds of food; notwithstanding which, they pass the day in continual song. This they do to invoke the spirits of the woods to direct them to the place where there are abundance of bears. They even cut the flesh in divers parts of their bodies, to render the spirits more propitious. They also address themselves to the *manes* of the beasts slain in preceding chases, as if it were to direct them in their dreams to plenty of game. One dreamer alone cannot determine

* Mr. Samuel Hearne.

† Charlevoix, *Nouv. Fr.* v. 443.

the place of chase, numbers must concur; but, as they tell each other their dreams, they never fail to agree: whether that may arise from complaisance, or by a real agreement in the dreams from their thoughts being perpetually turned on the same thing.

The chief of the hunt now gives a great feast, at which no one dares to appear without first bathing. At this entertainment they eat with great moderation, contrary to their usual custom. The master of the feast alone touches nothing; but is employed in relating to the guests ancient tales of the wonderful feats in former chases: and fresh invocations to the manes of the deceased bears conclude the whole. They then fall forth amidst the acclamations of the village, equipped as if for war, and painted black. Every able hunter is on a level with a great warrior; but he must have killed his dozen great beasts before his character is established: after which his alliance is as much courted as that of the most valiant captain.

They now proceed on their way in a direct line: neither rivers, marshes, or any other impediments, stop their course; driving before them all the beasts which they find in their way. When they arrive in the hunting-ground, they surround as large a space as their company will admit, and then contract their circle; searching, as they contract, every hollow tree, and every place fit for the retreat of the bear, and continue the same practice till the time of the chase is expired.

As soon as a bear is killed, a hunter puts into its mouth a lighted pipe of tobacco, and, blowing into it, fills the throat with the smoke, conjuring the spirit of the animal not to resent what they are going to do to its body; nor to render their future chases unsuccessful. As the beast makes no reply, they cut out the string of the tongue, and throw it into the fire: if it crackles and runs in (which it is almost sure to do) they accept it as a good omen; if not, they consider that the spirit of the beast is not appeased, and that the chase of the next year will be unfortunate.

The hunters live well during the chase, on provisions which they bring with them. They return home with great pride and self-sufficiency;

sufficiency; for to kill a bear forms the character of a complete man. They again give a great entertainment, and now make a point to leave nothing. The feast is dedicated to a certain genius, perhaps that of Gluttony, whose resentment they dread, if they do not eat every morsel, and even sup up the very melted grease in which the meat was dressed. They sometimes eat till they burst, or bring on themselves some violent disorders. The first course is the greatest bear they have killed, without even taking out the entrails, or taking off the skin, contenting themselves with singeing the skin, as is practised with hogs*.

IN KAMTSCHAT-
KA.

The *Kamtschatkans*, before their conversion to Christianity, had almost similar superstitions respecting bears and other wild beasts: they entreated the bears and wolves not to hurt them in the chase, and whales and marine animals not to overturn their boats. They never call the two former by their proper name, but by that of *Sipang*, or *ill-luck*.

At present the *Kamtschatkans* kill the bear and other wild beasts with guns: formerly they had variety of inventions; such as filling the entrance of its den with logs, and then digging down upon the animal and destroying it with spears†. In *Siberia* it is taken by making a trap-fall of a great piece of timber, which drops and crushes it to death: or by forming a noose in a rope fastened to a great log; the bear runs its head into the noose, and, finding itself engaged, grows furious, and either falls down some precipice and kills itself, or wears itself to death by its agitations.

The killing of a bear in fair battle is reckoned as great a piece of heroism by the *Kamtschatkans* as it is with the *Americans*. The victor makes a feast on the occasion, and feasts his neighbors with the beast; then hangs the head and thighs about his tent by way of trophies.

These people use the skins to lie on, and for coverlets; for bonnets, gloves, collars for their dogs, soles for their shoes, to prevent them

* *Charlevoix*, v. 169 to 174.

† *Hist. Kamtschatska*, Fr. iii. 73.

from slipping on the ice. Of the shoulder-blades they make instruments to cut the grass; of the intestines, covers for their faces, to protect them from the sun during spring; and the *Cossacks* extend them over their windows instead of glass. The flesh and fat is among the chief dainties of the country*.

Superstitions, relative to this animal, did not confine themselves to *America* and *Asia*, but spread equally over the north of *Europe*. The *Laplanders* held it in the greatest veneration: they called it the *Dog of God*, because they esteemed it to have the strength of ten men, and the sense of twelve†. They never presume to call it by its proper name of *Guouzbja*, least it revenge the insult on their flocks; but style it *Moedda-aigia*, or the *old man in a furred cloak*‡.

The killing of a Bear was reckoned as great an exploit in *Lapland* as it was in *America*, and the hero was held in the highest esteem by both sexes; and, by a singular custom, was forbid all commerce with his wife for three days. The *Laplanders* bring home the slain beasts in great triumph. They erect a new tent near their former dwelling, but never enter it till they have flung off the dress of the chase. They continue in it three entire days; and the women keep at home the same space. The men dress the flesh of the Bear in the new tent, and make their repast, giving part to the females; but take great care never to bestow on them a bit of the rump. Neither will they deliver to them the meat through the common entrance of the hut, but through a hole in another part. In sign of victory, the men sprinkle themselves with the blood of the beast.

After they have finished eating the flesh, they bury the bones with great solemnity, and place every bone in its proper place, from a firm persuasion that the Bear will be restored, and re-animate a new body.

At the pulling off the skin, and cutting the body into pieces, they were used to sing a song, but without meaning or rhyme||; but the

* *Hist. Kamtschatka, Fr. iii. 390.*
same, 502.

|| The same, *Suppl.*

† *Leems Lapmark, Suppl. 64.*

K

‡ The

antient

antient *Fins* had a song, which, if not highly embellished by the translator, is far from inelegant.

Beast ! of all forest beasts subdued and slain,
Health to our huts and prey a hundred-fold
Restore ; and o'er us keep a constant guard !
I thank the Gods who gave so noble prey !
When the great day-star hides beyond the *alps*,
I hie me home ; and joy, all clad in flowers,
For three long nights shall reign throughout my hut.
With transport shall I climb the mountain's side.
Joy op'd this day, joy shall attend its close.
Thee I revere, from thee expect my prey :
Nor e'er forgot my carol to the BEAR *.

21. WOLVERENE.

Hist. Quad. N° 176, 177. *Syn. Quad.*

Gulo, Pallas Spicil. Zool. Fasc. xiv. 25. tab. ii.—Lév. Mus.

BEAR. With short rounded ears, almost concealed by the fur : face sharp, black, and pointed : back broad, and, while the animal is in motion, much elevated, or arched ; and the head carried low : the legs short and strong : claws long and sharp, white at their ends.

The length from nose to tail twenty-eight inches ; of the trunk of the tail seven inches. It is covered with thick long hairs, reddish at the bottom, black at the end ; some reach six inches beyond the tip.

The hairs on the head, back, and belly, are of the same colors, but much finer and softer. Before they are examined, the animal appears wholly black. The throat whitish, marked with black. Along the sides, from the shoulders to the tail, is a broad band of a ferruginous color : in several of the skins, brought from *Hudson's Bay*, I ob-

* *Nichols's Russian Nations*, i. 50.

W O L V E R E N E.

67

served this band to be white. The legs are black; the feet covered with hair on the bottom. On the fore feet of that which I examined were some white spots. On each foot were five toes, not greatly divided.

It hath much the action of a Bear; not only in the form of its back, and the hanging down of its head, but also in resting on the hind part of the first joint of its legs.

This is one of the local animals of *America*. I trace it as far north as the *Copper* river, and to the countries on the west and south of *Hudson's Bay*, *Canada*, and the tract as far as the straits of *Michillmakinac*, between the lakes *Huron* and *Superior*.

I have reason to think that the Glutton of the old writers is the same with this animal; and that in my History of Quadrupeds I unnecessarily separated them. Since I have received the late publication of Dr. *Pallas*, I am satisfied that it is common to the north of *America*, *Europe*, and *Asia*, even to *Kamtschatka*; inhabiting the vast forests of the north, even within the *Polar* circle. The *Kamtschatkans* value them so highly as to say, that the heavenly beings wear no other furs. The skins are the greatest present they can make their mistresses; and the women ornament their heads with the parts of the white banded variety. The *Russians* call these animals *Rossomak*; the *Kamtschatkans*, *Tymi*, or *Tummi*.

It is a beast of uncommon fierceness, the terror of the Wolf and Bear; the former, which will devour any carrion, will not touch the carcase of this animal, which smells more fetid than that of a Polecat. It has great strength, and makes vast resistance when taken; will tear the traps often to pieces; or if wounded, will snap the stock from the barrel of the musket; and often do more damage in the capture than the fur is worth.

It preys indifferently on all animals which it can master. It feeds by night, and, being slow of foot, follows the track of wolves and foxes in the snow, in order to come in for share of their prey. It will dig up the carcases of animals, and the provisions concealed by the

K 2

huntmen

PLACE.

GLUTTON OF OLD
WRITERS.

MANNERS.

huntsmen deep in the snow, which it will carry away to other places to devour. About the *Lena* it will attack horses, on whose backs are often seen the marks of its teeth and claws. By a wonderful sagacity it will ascend a tree, and fling from the boughs a species of moss which Elks and Reins are very fond of; and when those animals come beneath to feed on it, will fall on them and destroy them: or, like the Lynx, it ascends to the boughs of trees, and falls on the Deer which casually pass beneath, and adheres till they fall down with fatigue. It is a great enemy to the Beaver *, and is on that account sometimes called the *Beaver-eater*. It watches at the mouth of their holes, and catches them as they come out. It searches the traps laid for taking other beasts, and devours those which it finds taken. It breaks into the magazines of the natives, and robs them of the provisions; whether they are covered with logs, brushwood, and built high between two or three standing trees †.

It lodges in clefts of rocks, or in hollows of trees, and in *Siberia* often in the deserted holes of Badgers; never digging its own den, nor having any certain habitation. It breeds once a year, bringing from two to four at a litter ‡. Its fur is much used for muffs. Notwithstanding its great fierceness when wounded, or first seizure, it is capable of being made very tame ||.

FUR.

The skins are frequently brought from *Hudson's Bay*, and commonly used for muffs. In *Siberia* the skin is most valued which is black, and has lost of the ferruginous band. These are chiefly found in the mountainous forests of *Yakutsk*, and used by the natives to adorn their caps. Few of the *Siberian* skins are sent into *Russia*, but are chiefly sold to the *Mongals* and *Chinese*.

The relations of the excessive gluttony of this animal; that it eats till it is ready to burst, and that it is obliged to unload itself by squeezing its body between two trees; are totally fabulous: like other animals, they eat till they are satisfied, and then leave off §.

* Dobbs, 40.

† Mr. Graham.

‡ The same.

|| Edw. ii. 103.

§ Hist. Kamtsch. 385.

Hist. Quad. N° 178.—Smellie, v. 46.—LEV. MUS.

22. RACCOON.

BEAR. With upper jaw larger than the lower: face sharp-pointed, and fox-like: ears short and rounded: eyes large, of a yellowish green; the space round them black: a dusky line extends from the forehead to the nose; the rest of the face, the cheeks, and the throat, white: the hair universally long and soft; that on the back tipped with black, white in the middle, and cinereous at the roots: tail annulated with black and white, and very full of hair: toes black, and quite divided: the fore-feet serve the purposes of a hand.

These animals vary in color. I have seen some of a pale brown, others white. Their usual length, from nose to tail, is two feet: near the tail about one.

Raccoons inhabit only the temperate parts of *North America*, from *New England** to *Florida*†. They probably are continued in the same latitudes across the continent, being, according to *Dampier*, found in the isles of *Maria*, in the South Sea, between the south point of *California* and *Cape Corientes*. It is also an inhabitant of *Mexico*, where it is called *Mapach*‡.

PLACE.

It lives in hollow trees, and is very expert at climbing. Like other beasts of prey, keeps much within during day, except it proves dark and cloudy. In snowy and stormy weather it confines itself to its hole for a week together. It feeds indifferently on fruits or flesh; is extremely destructive to fields of mayz, and very injurious to all kinds of fruits; loves strong liquors, and will get excessively drunk. It makes great havock among poultry, and is very fond of eggs. Is itself often the prey of Snakes§.

MANNERS.

* *Josselyn's voy.* 85.
§ *Kalm*, i. 97. ii. 63.

† *Account of Florida*, 50.

‡ *Fernand. Nov. Hisp.* i.

Those

Those which inhabit places near the shore live much on shell-fish, particularly oysters. They will watch the opening of the shell, dextrously put in its paw, and tear out the contents; sometimes the oyster suddenly closes, catches the thief, and detains it till drowned by the return of the tide. They likewise feed on crabs, both sea and land. It has all the cunning of the Fox. *Lawson* * says, that it will stand on the side of a swamp, and hang its tail over into the water: the crabs will lay hold, mistaking it for a bait; which, as soon as the Raccoon feels, it pulls out with a sudden jerk, and makes a prey of the cheated crabs.

It is made tame with great ease, so as to follow its master along the streets; but never can be broke from its habit of stealing, or killing of poultry †. It is so fond of sugar, or any sweet things, as to do infinite mischief in a house, if care is not taken ‡.

It has many of the actions of a Monkey; such as feeding itself with its fore feet, sitting up to eat, being always in motion, being very inquisitive, and examining every thing it sees with its paws. Notwithstanding it is not fond of water, it dips into it all sorts of dry food which is given to it; and will wash its face with its feet, like a Cat.

It is sought after on account of the fur. Some people eat it, and esteem it as very good meat. The *Swedes* call it *Siup*, and *Esplan*; the *Dutch*, *Hespan*; and the *Iroquese*, *Affigbro*. The hair makes the best hats, next to that of the Beaver. The tail is worn round the neck in winter, by way of preservative against the cold ||.

* 121.

† *Kalm*, i. 208.

‡ The same.

|| *Kalm*, ii. 97.

HIST. QUAD. GENUS XXI.

BADGER.

American Badger, *Hist. Quad.* p. 298. β .—*Smellie*, iv. 226.—*LEV. MUS.*

23. COMMON.

BADGER. With rounded ears: forehead, and middle of the cheeks, marked with a white line, extending to the beginning of the back, bounded on each side by another of black: cheeks white: space round the ears dusky: body covered with long coarse hair, cinereous and white.

The legs were wanting in the skin which I saw; but I supply that defect from *M. de Buffon's* description. They were dusky, and the toes furnished with claws, like the *European* kind. *M. de Buffon* observed only four toes on the hind feet; but then he suspected that one was torn off from the dried skin he saw.

These animals are rather scarce in *America*. They are found in the neighborhood of *Hudson's Bay*, and in *Terra di Labrador*; and perhaps as low as *Pensylvannia*, where they are called Ground Hogs*. They do not differ specifically from the *European* kind; but are sometimes found white in *America*†.

PLACE.

I do not discover them in northern *Asia*, nearer than the banks of the *Yaik*‡. They are common in *China*, where they are frequently brought to the shambles, being an esteemed food||. In northern *Europe*, they are found in *Norway* and *Sweden*§.

Le Comte de Buffon imagines this animal¶ to be the *Carcajou* of the *Americans*, and not the *Wolveren*. The matter is uncertain:.

* *Kalm*, i. 189.
travels, ii. 83.
tom. iii. 242.

† *Briffon Quad.* 185.
§ *Pontoppidan*, ii. 28. *Faun. Suec.* N° 20.

‡ *Pallas*:

|| *Bell's*.
¶ *Suppl.*

yet I find that name bestowed on the latter by *La Hontan*; by *Dobbs*, who makes it synonymous; and by *Charlevoix*, though the last mistakes the animal, yet not the manners of that which he ascribes it to. On the other hand, Mr. *Graham* and Mr. *Edwards* omit that title, and call it only *Wolveren*, or *Quequehatch*.

HIST.

HIST. QUAD. GENUS XXII.

OPOSSUM.

HIST. QUAD. N° 181.

OPOSSUM. With ten cutting teeth above, eight beneath: 24. VIRGINIAN.
 eyes black, small, and lively: ears large, naked, membranaceous, and rounded: face long and pointed; whiskers on each side of the nose, and tufts of long hairs over the eyes: legs are short; the thumb on the hind feet has a flat nail, the rest of the toes have on them sharp talons: the body is short, round, and thick: the tail long; the base is covered with hair for three inches, the rest is covered with small scales, and has the disgusting resemblance of a Snake.

On the lower part of the belly of the female is a large pouch, in which the teats are placed, and in which the young lodge as soon as they are born. The body is clothed with very long soft hairs, lying usually uneven: the color appears of a dirty white; the lower parts of the hairs dusky: and above each eye is a whitish spot: the belly tinged with yellow.

The length of one I examined was seventeen inches, of the tail fourteen.

This species is found as far north as *Canada**, where the *French* call it *Le Rat de bois*; from thence it extends southward, even to the *Brazils* and *Peru*. The singularity of the ventral pouch of the female, and the manner of its bringing up its young, places it among the most wonderful animals of the new continent.

PLACE.

As soon as the female finds herself near the time of bringing forth, she prepares a nest of coarse grass, covered with long pieces of sticks, near four feet high and five in diameter, confusedly put to-

* *Charlevoix*, v. 197.

L

gether.

gether*. She brings forth from four to six at a time. As soon as they come into the world they retreat into the false belly, blind, naked, and exactly resembling little foetuses. They fasten closely to the teats, as if they grew to them; which has given cause to the vulgar error, that they were created so. There they adhere as if they were inanimate, till they arrive at a degree of perfection in shape, and attain sight, strength, and hair: after which they undergo a sort of second birth. From that time they run into the pouch as an asylum from danger. The female carries them about with the utmost affection, and would rather be killed than permit this receptacle to be opened; for she has the power of contracting or dilating the orifice by the help of some very strong muscles. If they are surprised, and have not time to retreat into the pouch, they will adhere to the tail of the parent, and escape with her†.

The Opossum is both carnivorous and frugivorous. It is a great enemy to poultry; and will suck the blood and leave the flesh untouched‡. It climbs trees very expertly, feeding on wild fruits, and also on various roots. Its tail has the same prehensile quality as that of some species of Monkeys. It will hang from the branches by it, and by swinging its body, fling itself among the boughs of the adjacent trees. It is a very sluggish animal; has a very slow pace, and makes scarcely any efforts to escape. When it finds itself on the point of being taken, it counterfeits death; hardly any torture will make it give signs of life§. If the person retires, it will put itself in motion, and creep into some neighboring bush. It is more tenacious of life than a Cat, and will suffer great violence before it is killed||.

The old animals are esteemed as delicate eating as a sucking pig; yet the skin is very foetid. The *Indian* women of *Louisiana* dye the hair, and weave it into girdles and garters¶.

* *Bartram's journal E. Florida*, 30.

§ The same, 56.

|| *Lawson*, 120.

† The same.

‡ *Du Pratz*, ii. 65.

¶ *Du Pratz*, ii. 66.

HIST. QUAD. GENUS XXIII.

WEESEL.

Hist. Quad. N° 192.—Smellie, iv. 257.—Lew. Mus.

25. COMMON.

WEESEL. With small rounded ears: beneath each corner of the mouth is a white spot: breast and belly white; rest of the body of a pale tawny brown. Its length, from the tip of the nose to the tail, is about seven inches; the tail two and a half.

Inhabits the country about *Hudson's Bay*, *Newfoundland*, and as far south as *Carolina* *. Mr. *Grabam* sent some over, both in their summer coat, and others almost entirely white, the color they assume in winter. We meet with them again in *Kamtschatka*, and all over *Russia* and *Siberia*; and in those northern regions they regularly turn white during winter. One, which was brought from *Natka Sound* in *North America*, had between the ears and nose a bed of glossy black, which probably was its universal color before its change. Dr. *Irving* saw on *Moffen* island, north of *Spitzbergen*, lat. 80. an animal, perhaps of this kind, spotted black and white †.

PLACE.

Hist. Quad. N° 193.—Smellie, iv. 262.—Lew. Mus.

26. STOAT.

WEESEL. With short ears, edged with white: head, back, sides, and legs, of a pale tawny brown: under side of the body white: lower part of the tail brown, the end black.

In northern countries, changes in winter to a snowy whiteness, the end of the tail excepted, which retains its black color: in this state is called an *Ermine*.

* *Catesby, App.*† *Phipps's voy.* 58.

PLACE.

Length, from nose to tail, ten inches; the tail is five and a half. Inhabits only *Hudson's Bay, Canada*, and the northern parts of *North America*. In *Newfoundland* it is so bold as to commit its thefts in open view. Feeds on eggs, the young of birds, and on the mice with which those countries abound. They also prey on Rabbits, and the White Grouse. The skins are exported from *Canada* among what the *French* call *la menuë pelletterie*, or small furs.

CAPTURE.

It is found again in plenty in *Kamtschatka*†, the *Kurili* islands, *Siberia*, and in all the northern extremities of *Europe*. It is scarce in *Kamtschatka*; and its chase is not attended to, amidst the quantity of superior furs. But in *Siberia* and *Norway* they are a considerable article of commerce. In the former, they are taken in traps, baited with a bit of flesh‡; in the latter, either shot with blunt arrows, or taken, as garden mice are in *England*, by a flat stone propped by a baited stick, which falls down on the left touch, and crushes them to death§. They are found in *Siberia* in great plenty in woods of birch, yet are never seen in those of fir. Their skins are sold there on the spot from two to three pounds sterling per hundred||.

They are not found on the *Arctic* flats. The inhabitants of the *Tschuktschi Noss* get them in exchange from the *Americans*, where they are of a larger size than any in the *Russian* dominions.

The excessive cold of certain winters has obliged even these hardy animals to migrate, as was evident in the year 1730, and 1744¶.

27. PINE.
MARTIN.

Hist. Quad. N° 200.—*Br. Zool.* i. N° 16.—*Smellie*, iv. 245.—*LEV. MVS.*

WEESSEL. With white cheeks and tips of ears; yellow throat and breast; rest of the fur of a fine deep chestnut-color in the male, paler in the female: tail bushy, and of a deeper color than the body.

* *Charlevoix*, v. 197.

† *Hist. Kamtschatka*, 99.

‡ *Bell's travels*, i. 199.

§ *Pontoppidan*, ii. 25.

|| *Gmelin Russ. Samlung*, 516.

¶ *Nov. Sp. an.* 188.

PINE MARTIN.

77

These animals inhabit, in great abundance, the northern parts of *America*; but I believe the species ceases before it arrives at the temperate provinces. They appear again in the north of *Europe*, extend across the *Urallian* chain, but do not reach the *Oby*.

PLACE.

They inhabit forests, particularly those of fir and pine, and make their nests in the trees. Breed once a year, and bring from two to four at a litter. They feed principally upon mice; but destroy also all kinds of birds which they can master. They are taken by the natives of *Hudson's Bay* in small log-traps, baited, which fall on and kill them. The natives eat the flesh.

MANNERS.

Their skins are among the more valuable furs, and make a most important article of commerce. I observed, that in one of the *Hudson's Bay* Company's annual sales, not fewer than 12,370 good skins, and 2360 damaged, were sold; and in that year (1743) 30,325 were imported by the *French* from *Canada* into the port of *Rochelle*. They are found in great numbers in the midst of the woods of *Canada*; and once in two or three years come out in great multitudes, as if their retreats were overstocked: this the hunters look on as a forerunner of great snows, and a season favorable to the chase*.

It is remarkable, that notwithstanding this species extends across the continent of *America*, from *Hudson's Bay* to the opposite side, yet it is lost on the *Asiatic* side of the Straits of *Tschuktschi*; nor is it recovered till you reach *Catherineburg*, a district of *Siberia* west of *Tobolsk*, and twenty-five degrees west longitude distant from *America*. The finest in the known world are taken about *Ufa*, and in the mountains of *Caucasus*†. It is known that the *Tschuktschi*‡ procure the skins for cloathing themselves from the *Americans*; their country being destitute of trees, and consequently of the animals, inhabitants of forests, furnishing those useful articles.

The House Martin, *Hist. Quad.* N° 199, is found neither in *America*, or the *Arctic* countries.

* *Charlevoix*, v. 197.

† *Dottor Pallas*.

‡ *Muller*, Pref. xxix.

28. PEKAN.

Hist. Quad. N° 204.—Smellie, vii. 307.—Lsv. Mus.

WEESEL. With ears a little pointed: body and head covered with hair of a mixture of grey, chesnut, and black, and beneath protected by a cinereous down: the lower jaw encircled with white: legs and tail black: on the breast, between the fore-legs, a spot of white, and another on the belly between the hind-legs: toes covered above and below with fur.

I saw this and the following animal at *Paris*, in the cabinet of M. *Aubry, Curè de St. Louis en L'Isle*. They were in glass cases, so I could get only an imperfect view of them. According to M. *de Buffon*, the length of this was a foot and a half *French* measure; the tail ten inches*. The fur is fine; and the skins were often imported by the *French* from *Canada*.

This seems to me to be very nearly allied to the *European* Martin, N° 15. *Br. Zool.* vol. i. It agrees very much in dimensions, and in the white marks. It is also the animal which Mr. *Graham* sent to the Royal Society from *Hudson's Bay*, under the name of *Jackash*, which he says harbours about creeks, and lives on fish. Brings from two to four young at a time. Is caught by the natives, who eat the flesh and barter the skins.

29. VISON.

Hist. Quad. N° 205.—Smellie, vii. 307.

WEESEL. With a long neck and body: short legs: head and body brown tinged with tawny: tail black: the down of a bright ash-color.

* *Le Pekan*, tom. xiii. 304. tab. xlii. xliii.

Length

Length from head to tail one foot four inches, *French*; tail seven inches, or to the end of the hairs nine.

Inhabits *Canada*.

Hist. Quad. N° 201, and p. 328.—*Smellie*, vii. 309.

Mustela Zibellina, *Pallas Sp. Zool. fasc.* xiv. 54. tab.

30. SABLE.

WEESEL. With head and ears whitish: the ears broad, inclining to a triangular form, and rounded at top, in the *Asiatic* specimens; in the *American*, rather pointed: whole body of a light tawny: feet very large, hairy above and below: claws white.

Length, from nose to tail, twenty inches; of the trunk of the tail, four inches; from the base to the end of the hairs eight: of a dusky color.

This description is taken from a skin sent from *Canada*: but it extends across the whole continent, being frequently found among the furs which the *Americans* traffic with among the inhabitants of the *Tschuktschi Noss* *. The *American* specimen, which I had opportunity of examining, was of the bleached, or worst kind; probably others may equal in value those of *Asia*.

The great residence of these animals is in *Asia*, beginning at the *Uralian* chain, and growing more and more plentiful as they advance eastward, and more valuable as they advance more north. None are found to the north-east of the *Anadir*, nor in any parts destitute of trees. They love vast forests, especially those of fir, in which those of most exquisite beauty are found. They are frequent in *Kamtschatka*, and are met with in the *Kuril* isles †. They extend from about lat. 50 to lat. 58.

They are very easily made tame: will attach themselves so to their master, as to wander a considerable way, and return again to their home.

* *Docteur Pallas*.

† *Descr. Kamtschatka*, 275.

PLACE

They abhor water: therefore the notion of their being the *Siberian* of *Aristotle* is erroneous.

CAPTURE.

Another way of taking them, besides those which I before mentioned, is by placing a piece of timber from tree to tree horizontally; near one end of this is placed a bait: over the lower piece of wood is placed another, suspended obliquely, and resting at one end on a post very slightly: a rod extends from it to a noose, to which the bait is fastened. As soon as the Sable seizes the meat, the upper timber falls, and kills the precious animal *. The hunting-season always begins with the first snows: but they are now become so very scarce, as to be confined to the vast forests of the extreme parts of *Siberia*, and to the distant *Kamtschatka*. Such has been the rage of luxury!

FURS WHEN FIRST
USED AS A LUXURY.

It was not till the later ages that the furs of beasts became an article of luxury. The more refined nations of antient times never made use of them: those alone whom the former stigmatized as barbarians, were clothed in the skins of animals. *Strabo* describes the *Indians* covered with the skins of Lions, Panthers, and Bears †; and *Seneca* ‡, the *Scythians* clothed with the skins of Foxes, and the lesser quadrupeds. *Virgil* exhibits a picture of the savage *Hyperboreans*, similar to that which our late circumnavigators can witness to in the cloathing of the wild *Americans*, unseen before by any polished people.

Gens effrena virum *Riphaeo* tenditur Euro;
Et pecudum fulvis velantur corpora fetis.

Most part of *Europe* was at this time in similar circumstances. *Cesar* might be as much amazed with the skin-dressed heroes of *Britain*, as our celebrated *Cook* was at those of his new-discovered regions. What time hath done to us, time, under humane conquerors, may effect for them. Civilization may take place, and those spoils of animals, which are at present essential for cloathing, become the mere objects of ornament and luxury.

* *Decouvertes dans le Ruffe*, &c. iv. 237. tab. vi. viii.
p. 1184.

† *Epist.* Ep. xc.

‡ *Strabo*, lib. xvii.

I cannot find that the *Greeks* or old *Romans* ever made use of furs. It originated in those regions where they most abounded, and where the severity of the climate required that species of cloathing. At first it consisted of the skins only, almost in the state in which they were torn from the body of the beast; but as soon as civilization took place, and manufactures were introduced, furs became the lining of the dress, and often the elegant facing of the robes. It is probable, that the northern conquerors introduced the fashion into *Europe*. We find, that about the year 522, when *Totila*, king of the *Visigoths*, reigned in *Italy*, that the *Suetbons* (a people of modern *Sweden*) found means, by help of the commerce of numberless intervening people, to transmit, for the use of the *Romans*, *saphilinas pelles*, the precious skins of the Sables*. As luxury advanced, furs, even of the most valuable species, were used by princes as lining for their tents: thus *Marco Polo*, in 1252, found those of the *Cham* of *Tartary* lined with Ermines and Sables†. He calls the last *Zibelines*, and *Zambolines*. He says that those, and other precious furs, were brought from countries far north; from the *land of Darkness*, and regions almost inaccessible, by reason of morasses and ice‡. The *Welsh* set a high value on furs, as early as the time of *Howel Dda* ||, who began his reign about 940. In the next age, furs became the fashionable magnificence of *Europe*. When *Godfrey* of *Boulogne*, and his followers, appeared before the emperor *Alexis Comnene*, on their way to the *Holy Land*, he was struck with the richness of their dresses, *tam ex ostro quam aurifrigio et niveo opere harmelino et ex mardrino grisioque et vario*. How different was the advance of luxury in *France*, from the time of their great monarch *Charlemagne*, who contented himself with the plain fur of the Otter! *Henry I.* wore furs; yet in his distress was obliged to change them for warm *Welsh* flannel§. But in the year 1337 the luxury had got to such a head, that *Edward III.* enacted, that all persons who could not spend a hundred a year, should absolutely be prohibited the use of this species of finery.

* *Jornandes de Rebus Geticis*.

† 160, 161, 162.

|| *Leges Wallicæ*.

† In *Bergeron's Coll.* 70. *Purchas*, iii. 86.

§ *Barrington on the Statutes*, 4th ed. 243.

These, from their great expence, must have been foreign furs, obtained from the *Italian* commercial states, whose traffic was at this period boundless. How strange is the revolution in the fur trade! The north of *Asia*, at that time, supplied us with every valuable kind; at present we send, by means of the possession of *Hudson's Bay*, furs, to immense amount, even to *Turkey* and the distant *Cbina*.

31. FISHER.

Hist. Quad. N° 202.—*Smellie*, v. 297.—*LEV. MUS.*

WEESEL. With ears broad, round, and dusky, edged with white: head and sides of the neck pale brown mixed with ash-color and black: hairs on the back, belly, legs, and tail, brown at the base, and black at their ends: sides of the body brown.

The feet very large and broad, covered above and below thickly with hair: on each foot are five toes, with white claws, sharp, strong, and crooked: the fore legs shorter than those behind: the tail is full and bushy, smallest at the end. Length, from nose to tail, is twenty-eight inches; of the tail seventeen.

This animal inhabits *Hudson's Bay*, and is found in *New England*, and as low as *Pensylvania*. About *Hudson's Bay* they are called *We-jacks*, and *Woodshocks*. They harbour about creeks, feed upon fish, and probably birds. They breed once a year, and have from two to four at a birth. The natives catch them, and dispose of the skins, which are sold in *England* for four or six shillings apiece. Such is the account I received from Mr. *Graham*.

The late worthy Mr. *Peter Collinson* transmitted to me the following relation, which he received from Mr. *Bartram*:—"They are found in *Pensylvania*; and, notwithstanding they are not amphibious, are called *Fishers*, and live on all kinds of lesser quadrupeds." I do not know how to reconcile these accounts of the same animal (for such it is) unless it preys indifferently on fish and land animals, as is often the case with rapacious beasts, and that both Mr. *Graham* and *Bartram* may have overlooked that circumstance.

Hist.

Hist. Quad. N° 207. — Smellie, v. 297.

32. STRIATED.

WEESEL. With small and rounded ears: the ground color of the whole animal black, marked on the back and sides with five long parallel lines of white; one extending from the head along the top of the back to the base of the tail; with two others on each side, the highest of which reaches a little way up the tail: the tail is long, and very bushy towards the end.

This species varies in the disposition of the stripes, and I suspect the male is entirely black, as described by *M. Du Pratz**; who says, that the female has rings of white intermixed. If that is the case, the *Coase*, which *M. de Buffon*† received from *Virginia*, is of this kind. It is of an uniform color; but what is a stronger proof of their differing only in sex, is the agreement in number of toes in the fore feet, there being four on each; an exception to the character of this Genus.

In size it is equal to an *European Pole-cat*, but carries its back more elevated.

These animals are found from *Pensylvania* as far as *Louisiana*, where they are known by the name of the *Pole-cat*‡ or *Skunk*; which is given indifferently to both of these foetid beasts.

Nature hath furnished this and the following a species of defence superior to the force either of teeth or claws. The *French* most justly call these animals *enfants du Diable*, or children of the Devil, and *Bêtes puantes*, or the stinking beasts; as the *Swedes* bestow on them that of *Fiskatta*. The pestiferous vapour which it emits from behind, when it is either attacked, pursued, or frightened, is so suffocating and foetid, as at once to make the boldest assailant retire with precipita-

* Vol. ii. 67.
xxxviii. xl.

† xiii. *Coase*, p. 288. *Le Conepute* (the female) *ibid.* tab.

‡ *Catesby*, ii. tab. 62.

tion. A small space is often no means of security; the animal either will turn its tail, and by a frequent crepitus prevent all repetition of attempts on its liberty; or else ejaculate its stiffing urine to the distance of eighteen feet*. Its enemy is stupified with the abominable stench; or perhaps experiences a temporary blindness, should any of the liquid fall on his eyes. No washing will free his cloaths from the smell: they must even be buried in fresh soil, in order to be effectually purified.

Persons who have just undergone this misfortune, naturally run to the next house to try to free themselves from it; but the rights of hospitality are denied to them: the owner, dreading the infection, is sure to shut the door against them.

Professor *Kalm* ran the danger of being suffocated by the stench of one, which was pursued into a house where he was.

A maid-servant, who destroyed another in a room where meat was kept, was so affected by the vapour as to continue ill for several days; and the provisions were so infected, that the master of the house was forced to fling them away †.

Travellers are often obliged, even in the midst of forests, to hold their noses, to prevent the effects of its stench.

The brute creation are in like dread of its effluvia. Cattle will roar with agony; and none but true-bred dogs will attack it: even those are often obliged to run their noses into the ground before they can return to complete its destruction. The smell of the dogs, after a combat of this nature, remains for several days intolerable.

Notwithstanding this horrible quality, the flesh is eaten, and is esteemed as sweet as that of a Pig. The bladder must be taken out, and the skin flayed off, as soon as the animal is killed ‡.

I should think it a very disagreeable companion: yet it is often tamed so as to follow its master like a Dog; for it never emits its

* *Kalm*, i. 275.

† The same, 277.

‡ *Lawson*, 119. *Kalm*, i. 278.

STRIATED WEESEL. SKUNK.

89

vapour unless terrified *. It surely ought to be treated with the highest attention.

The skin is neglected by the *Europeans*, by reason of the coarseness of the hair. The *Indians* make use of it for tobacco pouches, which they carry before them like the *Highlanders*.

It climbs trees with great agility. It feeds on fruits † and insects. Is a great enemy to birds, destroying both their eggs and young. It will also break into hen-roosts, and destroy all the poultry ‡. It breeds in holes in the ground, and hollow trees, where it leaves its young, while it is rambling in quest of prey.

Hist. Quad. N° 218.—*Smellie*, v: 297.—*LEV. MUS.*

33. SKUNK.

WEESEL. With short rounded ears: sides of the face white: from the nose to the back extends a bed of white; along the top of the back, to the base of the tail, is another broad one of black, bounded on each side by a white stripe: the belly, feet, and tail, black. But the colors vary: that which is figured by *M. de Buffon* has a white tail: the claws on all the feet very long, like those of a Badger: the tail very full of hair.

This inhabits the continent of *America*, from *Hudson's Bay* § to *Peru* ||. In the last it is called *Cbinche*. It burrows like the former, and has all the same qualities. It is also found in *Mexico*, where it is called *Conepatl*, or *Boy's little Fox* ¶.

* *Kalm*, i. 278.

† *Catesby*, ii. tab. 62.

‡ *Kalm*, i. 274.

§ Sent

from thence by Mr. *Graham*.

|| *Feuillee Obs. Peru*, 1714, p. 272.

¶ *Her-*

nandez, Mex. 382.

HIST.

OTTER.

HIST. QUAD. GENUS XXIV.

34. COMMON.

Hist. Quad. N° 226.—*Br. Zool.* i. N° 19.—*Smellie*, iv. 232.—*LEV. Mus.*

OTTER. With short rounded ears: head flat and broad: long whiskers: aperture of the mouth small: lips very muscular, designed to close the mouth firmly while in the action of diving: eyes small, and placed nearly above the corners of the mouth: neck short: body long: legs short, broad, and thick: five toes on each foot, each furnished with a strong membrane or web: tail depressed, and tapering to a point.

The fur fine; of a deep brown color, with exception of a white spot on each side of the nose, and another under the chin.

These animals inhabit as far north as *Hudson's Bay*, *Terra di Labrador*, and *Canada*, and as low south as *Carolina* and *Louisiana**; but in the latter provinces are very scarce. The species ceases farther south. *Lawson* says that they are sometimes found, to the westward of *Carolina*, of a white color, inclining to yellow. Those of *North America* are larger than the *European*, and the furs of such which inhabit the colder parts are very valuable. Their food is commonly fish; but they will also attack and devour the Beaver †.

They are found again in *Kamtschatka*, and in most parts of northern *Europe* and *Asia*, but not on the *Arctic* flats: are grown very scarce in *Russia*. The *Kamtschatkans* use their furs to face their garments, or to lap round the skins of Sables, which are preserved better in Otter skins than any other way. They usually hunt them with dogs, in time of deep snow, when the Otters wander too far from the banks of rivers ‡.

* *Lawson*, 119, and *Du Pratz*, ii. 69.
115, 116.

† *Dobbs*, 40.

‡ *Hist. Kamf.*

The *Americans* round *Hudson's Bay* shoot or trap them for the sake of the skins, which are sent to *Europe*. They also use the skins for pouches, ornamented with bits of horn; and eat the flesh.

Otters are probably continued along the *Arctic* parts of *America*, westward; being found on the most eastern, or the greater *Fox Islands*, which are supposed to be pretty near to that continent.

Lesser Otter, *Hist. Quad.* N° 228.

35. MINX.

OTTER. With a white chin: rounded ears: top of the head in some hoary, in others tawny: the body covered with short tawny hairs, and longer of a dusky color: the feet broad, webbed, and covered with hair: the tail dusky, ending in a point. This animal is of the shape of the common Otter, but much smaller: its length being only twenty inches from head to tail; of the tail only four.

DESCRIPTION.

It inhabits the middle provinces of *North America*, from *New Jersey* to the *Carolinas*. I did not discover it among the skins sent by Mr. *Graham* from *Hudson's Bay*; the animal described as one of this species differing from the many I have seen from the more southern colonies: yet possibly it may be found in a more northern latitude than that which I have given it, if the *Foutereaux*, an amphibious sort of little *Polecats* mentioned by *La Hontan*, be the same *.

AMERICA.

It frequents the banks of rivers, inhabiting hollow trees, or holes which it forms near the water †. It has, like the *Skunks*, when provoked, a most excessively foetid smell. It lives much upon fish, frogs, and aquatic insects; dives admirably, and will continue longer under water than the *Musk-beaver* ‡: yet at times it will desert its watery haunts, and make great havoc in the poultry yards, biting off the heads of the fowls, and sucking the blood. At times it lurks amidst

* i. 62.

† *Kalm*, ii. 62.

‡ Letter from Mr. *Peter Collinson*.

the docks and bridges of towns, where it proves a useful enemy to rats*.

It is besides very destructive to the Tortoise; whose eggs it scrapes out of the sand and devours: and eats the fresh-water muscles; whose shells are found in great abundance at the mouth of their holes. It is capable of being made tame, and domesticated †.

ASIA.

EUROPE.

The species is spread in *Asia*, along the banks of the *Taik*, in the *Orenburg* government ‡. None are seen in *Siberia*; but appear again near the rivers which run into the *Amur*. Its fur is in those parts very valuable, and esteemed as next in beauty to the Sable. It is either hunted with dogs or taken in traps. In *Europe* it is found in *Poland* and *Lithuania*, where it is named *Nurek*; and the *Germans* call it *Nurtz*. It is also an inhabitant of *Finland*: the natives call it *Tichuri*; the *Swedes*, *Menk* §, a name carried into *America* by some *Swedish* colonist, and with a slight variation is still retained.

35. SEA.

Hist. Quad. N° 230.

Lutra Marina, *Kalan. Nov. Com. Petrop.* ii. 367. tab. xvi.

Castor Marin, *Hist. Kamtschatka*, 444.

Sea Otter, *Muller*, 57, 58 ||.—*LEV. MUS.*

DESCRIPTION.

OTTER. With hazel irides: upper jaw long, and broader than the lower: nose black: ears erect, conic, small: whiskers long and white: in the upper jaw six, in the lower four, cutting teeth: grinders broad: fore legs thick; on each four toes, covered with hair, and webbed: the hind feet resemble exactly those of a Seal: the toes divided by a strong shagreened membrane, with a skin skirting the external side of the outmost toe, in the manner of some water fowl.

* *Kalm*, ii. 61. † *Lawson*, 122. ‡ *Dr. Pallas*. § *Fauna Suec.* N° 13.

|| I here insert the synonyms; for in the Synopsis of Quadrupeds, following *Linnaeus* and *Briffon*, I confound the *Brazilian* Otter of *Marcgrave* with this animal.

The

The skin is extremely thick, covered closely with long hair, remarkably black and glossy; and beneath that is a soft down. The hair sometimes varies to silvery. The hair of the young is soft and brown.

The length, from nose to tail, is about three feet; that of the tail thirteen inches and a half. The tail is depressed, full of hair in the middle, and sharp-pointed. The weight of the biggest, seventy or eighty pounds.

These are the most local animals of any we are acquainted with, being entirely confined between lat. 44 and 60, and west longitude 126 to 150 east from *London*, in the coast and seas on the north-east parts of *America*; and again only between the *Kamtschatkan* shores and the isles which intervene between them and *America*. They land also on the *Kuril* islands; but never are seen in the channel between the north-east part of *Siberia* and *America*.

They are most extremely harmless, and most singularly affectionate to their young. They will never desert them, and will even pine to death on being robbed of them, and strive to breathe their last on the spot where they experienced the misfortune.

It is supposed that they bring but one at a time. They go between eight and nine months with young, and suckle it almost the whole year. The young never quits its dam till it takes a mate. They are monogamous, and very constant.

They bring forth on land: often carry the young between their teeth, fondle them, and frequently fling them up and catch them again in their paws. Before the young can swim, the old ones will take them in their fore feet, and swim about upon their backs.

They run very swiftly: swim sometimes on their sides, on their backs, and often in a perpendicular direction. They are very sportive, embrace each other, and kiss.

They never make any resistance; but endeavour, when attacked, to save themselves by flight: when they have escaped to some distance, they will turn back, and hold one of their fore feet over their

N

eyes,

SIZE.

PLACE:

MANNERS.

eyes, to gaze, as men do their hands to see more clearly in a sunny day; for they are very dull-sighted, but remarkably quick-scented.

They are fond of those parts of the sea which abound most with weeds, where they feed on fish, sepia, lobsters, and shell-fish, which they comminute with their flat grinders.

CAPTURE.

They are taken different ways: in the summer, by placing nets among the sea-plants, where these animals retire in the frequent storms of this tempestuous coast.

They are killed with clubs or spears, either while they lie asleep on the rocks, or in the sea floating on their backs.

Thirdly, they are pursued by two boats till they are tired, for they cannot endure to be long at a time under water.

During winter they are brought in great numbers to the *Kurilian* islands, by the eastern winds, from the *American* shore.

The hunter goes with a dog, who points them. He knocks it on the head, and flays it, while the dog is beating about for another.

They are called in the *Kamtchatkan* tongue *Kalan*, in the plural *Kalani*.

Their flesh is preferred to that of Seals by the natives; but the unfortunate crew who were shipwrecked in the expedition in 1741, under Captain *Bering*, found it to be insipid, hard, and tough as leather; so that they were obliged to cut it in small pieces before they could eat it. Others pretend, that the flesh of the young is very delicate, and scarcely to be distinguished from young lamb.

FUR.

But the valuable part of them is their skin. Few are brought into *Europe*; but great quantities are sold to the *Chinese*, at vast prices, from seventy to a hundred rubles apiece, or 14 or 25l. sterling each. What a profitable trade might not a colony carry on, was it possible to penetrate to these parts of *North America* by means of the rivers and lakes! The access to *Pekin* would be then easy, by sailing up the gulph of *Petcheli*. At present, these valuable furs are carried by land above three thousand miles to the frontiers of *China*, where they are delivered to the merchants.

These

These animals partake very much of the nature of Seals, in their almost constant residence in the water, their manner of swimming, fin-like legs, and number of fore teeth. In their ears they greatly resemble the *little Seal* of my History of Quadrupeds, N° 386, and seem the animals which connect the genera of Otters and Seals.

They are seen very remote from land, sometimes even at the distance of a hundred leagues.

DIV. II. SECT. II.
DIGITATED QUADRUPEDS.

Without CANINE TEETH: and with two CUTTING TEETH.
only in each jaw.

DIV. II. SECT. II. Digitated Quadrupeds.

Without CANINE TEETH: and with two CUTTING TEETH
only in each jaw.

Generally Herbivorous, or Frugivorous.

HARE.

HIST. QUAD. GENUS XXVI.

37. VARYING.

Hist. Quad. N° 242.—Alpine Hare, Br. Zool. i. N° 21.—LÉV. MUS.

HARE. With the edges of the ears and tips black: the colors, in summer, cinereous, mixed with black and tawny: tail always white.

Mr. *Graham* says, that those of *Hudson's Bay* are of the same size with the common; but those which I have examined in *Scotland* are much less, weighing only six pounds and a half: the common Hare weighs upwards of eight.

This species inhabits *Greenland*, where alone they continue white throughout the year*; and are very numerous amidst the snowy mountains. They are usually fat; and feed on grass, and the white moss of the country. They are found about the rocks at *Churchill*, and the straits of *Hudson's Bay*; but are not common. They breed once a year, and bring two at a time†. They change their color to white at approach of winter. They are met with in *Canada* and *Newfoundland*; after which the species ceases to the southward, or at least I have no authority for its being continued; the Hare of *New England* seeming, by *Jesselyn's* account, to be the following species.

* *Crantz*, i. 70. *Egede*, 62.† Mr. *Graham*.

The *Greenlanders* eat the flesh dressed, and the contents of the stomach raw. They use the excrements for wick for their lamps; and cloath their children with the soft and warm skins.

This species abounds from *Livonia* to the north-east part of *Siberia* and *Kamtschatka*; and from *Archangel* to *Saratof*, on the banks of the *Volga*, in east lat. 49. 52, and even farther into the *Orenburg* government. In *Siberia* they quit the lofty mountains, the southern boundaries of that country, and, collecting in flocks innumerable, at approach of winter migrate to the plains, and northern wooded parts, where vegetation and food abound. Mr. *Bell* met with them daily in their progress*. Multitudes of them are taken in toils by the country people, not for the sake of the flesh, but the skins; which are sent to *Peterburg*, and from thence exported to various parts.

American Hare, *Ph. Transf.* lxii. 4. 376. *Hist. Quad.* N° 243.

38. AMERICAN.

HARE. With ears tipt with grey: neck and body rusty, cinereous, and black: legs pale rust color: belly white: tail black above, white beneath.

The distinctions between this and the common Hares and varying Hares are these:—They are less, weighing only from three pounds eight ounces to four pounds and a half: the length to the setting-on of the tail only nineteen inches. The hind legs are longer in proportion than those of the common Hare or *varying* Hare; the length of this, from the nose to the tip of the hind legs, extended, being two feet five: of a *varying* Hare, measured at the same time, in *Hudson's Bay*, only two feet seven and a half; but from the nose to the tail was two feet: its weight seven pounds six ounces.

SIZE:

OF A VARYING.
HARE.

* *Travels*, octavo ed. i. 246.

These

These animals are found from *Hudson's Bay* to the extremity of *North America*; but swarm in countries bordering on the former. In the time of *M. Jeremie*, who resided in *Hudson's Bay* from 1708 to 1714, twenty-five thousand were taken in one season *. At present they are a principal winter food to our residents there. They are taken in wire snares, placed at certain intervals in small openings made in a long extent of low hedging formed for that purpose; the animals never attempting to jump over, but always seek the gaps. These hedges are removed, on the falling of the snows, to other places, when the Rabbits seek new tracks †. Their flesh is very good; but almost brown, like that of the *English Hare*.

From *Hudson's Bay*, as low as *New England*, these animals, at approach of winter, receive a new coat, which consists of a multitude of long white hairs, twice as long as the summer fur, which still remains beneath. About the middle of *April* they begin to shed their winter covering.

From *New England* southward they retain their brown color the whole year. In both warm and cold climates they retain the same nature of never burrowing; but lodge in the hollow of some decayed tree, to which they run in case they are pursued. In the cultivated parts of *America*, they make great havoc among the fields of cabbage, or turnips ‡. In *Carolina*, they frequent meadows and marshy places; and are very subject to have maggots breed in the skin §. In that province they breed very often, and even in the winter months, and bring from two to six at a time; but usually two or four ||.

I know of no use that is made of the skins, excepting that the natives of *Hudson's Bay* wrap them round the limbs of their children, to preserve them against the cold.

* *Voyages au Nord*, iii. 344.

† *Drage*, i. 176.

‡ *Kalm*, ii. 46.

§ *Lawson*, 122.

|| *Docteur Garden*.

* * Without a tail.

Hist. Quad. N° 248.—Blackb. Mus.

39. ALPINE.

HARE. With short, broad, rounded ears: long head, and whiskers: fur dusky at the roots; of a bright bay near the ends; tips white: intermixed are divers long dusky hairs.

Length nine inches.

Found from the *Altaic* chain to lake *Baikal*, and from thence to *Kamtchatka*. They dwell amidst the snows of the loftiest and most dreadful rocky mountains, and never descend to the plains. They also are said to inhabit the farthest Fox or *Aleutian* islands: therefore possibly may be met with in *America*.

The manners are so amply described in my History of Quadrupeds, that I shall not repeat an account of them.

BEAVER.

HIST QUAD. GENUS XXVII.

40. CASTOR.

Hist. Quad. N° 251. — *Smellie*, v. 21. — *LEV. MUS.*

DESCRIPTION.

BE A V E R. With a blunt nose: ears short, rounded, and hid in the fur: eyes small: very strong cutting teeth: hair of a deep chestnut brown: fore feet small, and the toes divided: hind feet large, and the toes webbed: the tail eleven inches long, and three broad; almost oval, flat, and covered with thin scales.

The usual length, from nose to tail, is about two feet four; but I have measured the skin of one, which was near three feet long.

Beavers vary in color. They are sometimes found of a deep black, especially in the north. In Sir *Ashton Lever's museum* is a specimen quite white. As they advance southward, the beauty of their fur decreases. Among the *Illinois* they are tawny, and even as pale as straw color*.

PLACE.

In *North America* these animals are found in great plenty all round *Hudson's Bay*, and as low as *Carolina* † and *Louisiana* ‡. They are not known in *East Florida* §. The species also ceases before it arrives in *South America*. To speak with precision, it commences in lat. 60, or about the river of *Seals*, in *Hudson's Bay*; and is lost in lat. 30, in *Louisiana*.

From *Hudson's Bay* and *Canada*, I can trace them westward to 120 degrees of longitude, as far as the tract west of *Lac Rouge*, or the Red lake ||. The want of discovery prevents us from knowing whether they are continued to the western extremity of this great continent opposite to *Asia*: probably they are, for the *Russian* adventurers got some of their skins on the isle of *Kadjak*, which the natives must

* *Charlevoix*, v. 140.
of *East Florida*, 50.

† *Lawson*.
|| *Debbs*, 35.

‡ *Du Pratz*, ii. 69.

§ *Account*

have

have had from *America*. They certainly are not found in the islands of the new Archipelago; nor yet in *Kamtschatka**, by reason of the interruption of woods, beyond the river *Konyma*. From thence I doubt whether they are met with associated, or in a civilized state, nearer than the banks of the river *Jenesei*, or the *Konda*, and other rivers which run into the *Oby*: but they are found scattered in the woody parts of independent *Tartary*; also in *Casan*, and about the *Taik*, in the *Orenburg* government. In the same unfociable state they inhabit *Europe*, and are found in *Russia*, in *Lapland*, *Norway*, and *Sweden*.

These are the most sagacious and industrious of animals. They live in society, and unite in their labors, for the good of the commonwealth they form. They erect edifices, superior in contrivance to the human beings. They usually live near, and shew a dexterity in their œconomy unequalled by the four-footed race.

In order to form a habitation, they select a level piece of ground, with a small rivulet running in the midst. To effect their works, a community of two or three hundred assembles: every individual bears his share in the laborious preparation. Some fall trees of great size, by gnawing them asunder with their teeth, in order to form beams or piles; others are employed in rolling the pieces to the water; others dive, and scrape holes with their feet in order to fix them; and another set exert their efforts to rear them in their proper places. A fifth party is busied in collecting twigs to wattle the piles. A sixth, in collecting earth, stones, and clay; others carry it on their broad tails to proper places, and with their feet beat and temper the earth into mortar, or ram it between the piles, or plaister the inside of the houses.

All these preparations are to form their dwellings within an artificial piece of water or pond, which they make by raising a dam across the level spot they had pitched on. This is done, first by driv-

SAGACITY.

DWELLINGS.

LABORS.

DAMS.

* The Sea Beaver (as it is called) Sp. of this work, must not be confounded with this.

ing into the ground stakes, five or six feet long, placed in rows, and securing each row by wattling it with twigs, and filling the interstices with clay, ramming it down close. The side next to the water is sloped, the other perpendicular. The bottom is from ten to twelve feet thick; the thickness gradually diminishes to the top, which is about two or three. The centre of the dam forms a segment of a circle; from which extends, on each side, a strait wing: in the midst of the centre is usually a gutter left for the waste water to discharge itself. These dams are often a hundred feet long, and nicely covered with turf.

Houses.

The houses these wise animals make, are placed in the water collected by means of the dam, and are seated near the shore. They are built upon piles, and are sometimes round, sometimes oval; the tops are vaulted, so that their inside resembles an oven, their outside a dome. The walls are made of earth, stones, and sticks, and usually two feet thick. They are commonly about eight feet high above the surface of the water*, and are very neatly and closely plaistered on the inside. The floor is a foot higher than the water. The house, sometimes, has only one floor, which is strewn with leaves or moss, on which each Beaver lies in its proper place; at other times there are three apartments; one to lodge, another to eat in, and a third to dung in†: for they are very cleanly, and instantly cause the filth to be carried off by the inferior Beavers.

M. Du Pratz ‡ says, that those of *Louisiana* form numbers of cells, and that each animal, or more probably each pair, possess one. He says, that he has seen no less than fifteen of these cells surrounding the centre of one house. He also acquaints us, that the Beavers of *Louisiana* are a third less than the brown sort; are covered with a cinereous down, which is covered with long silvery hairs.

In each house are two openings; one towards the land, the other is within, and communicates with the water, for the conveniency of

* Clerk, i. 142.

† Mr. Graham. Galesby, App. xxx.

‡ i. 241.

getting to their magazine of provision in frosty weather. This orifice is formed so as to be beyond the thickness of the ice; for they lodge their provisions under the water, and dive and bring it into their house according as they want it.

MAGAZINES.

Their food is laid in before winter by the tenants of each house; it consists of the bark and boughs of trees. *Lawson* says that they are fondest of the sassafras, ash, and sweet gum. In summer they live on leaves, fruits, and sometimes crabs and cray-fish; but they are not fond of fish.

FOOD.

The number of houses in each pond is from ten to twenty-five: the number of animals in each, from two to thirty. They are supposed to associate in pairs; are therefore monogamous: another proof of their advances towards civilization.

NUMBER OF
HOUSES;

I think I have heard that every family consists of an even number. Sometimes the community, within the precinct of a dam, consists of four hundred; but I presume this must be in places little frequented by mankind.

OF INHABITANTS.

They begin to build their houses, when they form a new settlement, in the summer; and it costs them a whole season to finish their work, and lay in their provisions.

They are very attentive to their safety; and on any noise take to the water for their further security. They form vaults or burrows in the banks of the creek formed by the dam, into which they retreat in case of imminent danger.

They seem to be among quadrupeds, what Bees are among insects. They have a chief, or superintendant, in their works, who directs the whole. The utmost attention is paid to him by the whole community. Every individual has his task allotted, which they undertake with the utmost alacrity. The overseer gives a signal by a certain number of smart flaps with his tail, expressive of his orders. The moment the artificers hear it, they hasten to the place thus pointed out, and perform the allotted labor, whether it is to carry wood; or draw the clay, or repair any accidental breach.

OVERSEERS.

They

CENTINELS.

They have also their centinels, who, by the same kind of signal, give notice of any apprehended danger.

SLAVES.

They are said to have a sort of slavish Beaver among them (analogous to the Drone) which they employ in servile works, and the domestic drudgery *.

THEIR WOOD HOW
CUT.

I have mentioned before their sagacity in laying in the winter provision. They cut the wood they prefer into certain lengths; pile them in heaps beneath the water, to keep them moist; and, when they want food, bite the wood into small pieces, and bring it into their houses. The *Indians* observe the quantity which the Beavers lay in their magazine at approach of winter. It is the Almanack of the Savages; who judge from the greater or less stock, of the mildness or severity of the approaching season †.

The expedition with which they cut down trees, for the forming their dams, is amazing. A number surrounds the body, and will in a few minutes gnaw through a tree of three feet in circumference; and always contrive to make it fall towards the spot they wish ‡.

Beavers have in *America* variety of lakes and waters in which they might fix their seats; but their sagacity informs them of the precarious tenure of such dwellings, which are liable to be overthrown by every flood. This induces them to undertake their mighty and marvellous labors. They therefore select places where no such inconveniences can be felt. They form a dam to support a reservoir, fed only by a small rill; and provide for the overflow of the waste water by a suitable channel in the middle of their bank. They have nothing to fear but from land floods, or the sudden melting of the snows. These sometimes make breaches, or damage their houses; but the defects are instantly repaired.

During the winter they never stir out, except to their magazines of provision; and in that season grow excessively fat.

They are strongly attached to certain haunts, there being places which they will not quit, notwithstanding they are frequently dis-

* *Mr. Graham.*† *Charlevoix, v. 151.*‡ *Catsby, App. 30.*

turbed.

turbed. There is, says *Charlevoix*, a strong instance on the road between *Montreal* and lake *Huron*, which travellers, through wantonness, annually molest; yet is always repaired by the industrious inhabitants.

In violent inundations they are sometimes overpowered in their attempts to divert the fury of the water. In those cases they fly into the woods: the females return as soon as the water abates; the males continue absent till *July*, when they come back to repair the ravages made in their houses*.

Beavers breed once a year, and bring forth the latter end of winter; and have two or three young at a birth.

There is a variety of the Beaver kind, which wants either the sagacity or the industry of the others, in forming dams and houses. These are called *Terriers*. They burrow in the banks of rivers, and make their holes beneath the freezing depth of the water, and work upwards for a great number of feet. These also form their winter magazines of provision. Beavers which escape the destruction of a community, are supposed often to become *Terriers*.

TERRIER
BEAVERS.

Strange animal seen by Mr. *Phipps* and others in *Newfoundland*, of a shining black: bigger than a Fox: shaped like an *Italian* grehound: legs long: tail long and taper. One gentleman saw five sitting on a rock with their young, at the mouth of a river; often leapt in and dived, and brought up trouts, which they gave to their young. When he shewed himself, they all leapt into the water, and swam a little way from shore, put their heads out of the water and looked at him. An old furrier said, he remembered a skin of one sold for five guineas. The *French* often see them in *Hare Bay*.

Beavers have, besides man, two enemies; the Otter, and the Wolverine; which watch their appearance, and destroy them. The last is on that account called, in some parts of *America*, the *Beaver-eater*. They are very easily overcome; for they make no resistance: and have no security but in flight.

THEIR ENEMIES.

* *Charlevoix*, v. 153.

It is not wonderful that such sociable animals should be very affectionate. Two young Beavers, which were taken alive and brought to a neighboring factory in *Hudson's Bay*, were preserved for some time; and throve very fast, till one of them was killed by an accident. The survivor instantly felt the loss, began to moan, and abstained from food till it died*.

How TAKEN.

They are taken several ways: sometimes in log-traps, baited with poplar sticks, laid in a path near the water. The *Indians* always wash their hands before they bait the traps, otherwise the sagacious animal is sure to shun the snare.

Sometimes they are shot, either while they are at work, or at food, or in swimming across the rivers. But these methods are used only in summer, and not much practised; for the skins in that season are far less valuable than in the winter. At that time they are taken in nets placed above and below their houses, across the creeks, on stakes. If the water is frozen, the ice is cut from shore to shore, in order to put down the stakes. When the net is set, the *Indians* send their women to the Beaver-houses to disturb the animals; who dart into the water, and are usually taken in the net, which is instantly hauled up; and put down again with all expedition. If the Beaver misses the net, it sometimes returns to its house, but oftener into the vaults on the sides of the banks; but the poor creature seldom escapes, being pursued into all his retreats, the houses being broke open, and the vaults searched by digging along the shores.

The value of the fur of these animals, in the manufacture of hats, is well known. It began to be in use in *England* in the reign of *Charles I.* †, when the manufacture was regulated, in 1638, by proclamation; in which is an express prohibition of using any materials except *Beaver stuff*, or *Beaver wool*; and the hats called demi-castors were forbidden to be made, unless for exportation.

This caused a vast increase of demand for the skins of the Beavers. The *Indians*, on the discovery of *America*, seem to have paid very

* *Drage's voy.* i. 151.

† *Rymer's Fœdera*, xx. 230.

little attention to them, amidst the vast variety of beasts they at that time possessed, both for food and cloathing. But about the period of the fashion of hats, they became an article of commerce, and object of chase. The southern colonies soon became exhausted of their Beavers; and of later years the traffic has been much confined to *Canada* and *Hudson's Bay*. The importance of this trade, and the ravages made among the animal creation in those parts, will appear by the following state of the imports into the ports of *London* and *Rochelle* in 1743. I take that year, as I have no other comparative state:

Hudson's Bay company sale, begun *November* 17th 1743.

26,750 Beaver skins.
 14,730 Martins.
 590 Otters.
 1,110 Cats, i. e. Lynx.
 320 Fox.
 600 Wolverenes.
 320 Black Bears.
 1,850 Wolves.
 40 Woodshocks, or Fishers.
 10 Minx.
 5 Raccoon.
 120 Squirrels.
 130 Elks, i. e. Stags.
 440 Deer.

Imported into *Rochelle* in the same year.

127,080 Beavers.
 16,512 Bears.
 110,000 Raccoon.
 30,325 Martins.
 12,428 Otters and Fishers.
 1,700 Minx.
 1,220 Cats.

P

1,267 Wolves.

1,267 Wolves.

92 Wolverenes.

10,280 Grey Foxes and Cats.

451 Red Foxes.

This great balance in favor of the *French* arises not only from their superior honesty in their dealings with the ignorant *Indians*, but the advantageous situation of *Canada* for the fur trade. They had both sides of the river *St. Lawrence*; the country round the five great lakes; and the countries bordering on the rivers flowing into them; and finally, the fine fur countries bordering on the *Hudson's Bay* company, many of whose waters falling into the *St. Lawrence*, gave an easy conveyance of those commodities to *Montreal*; where a fair is annually kept, with all the savage circumstances attendant on *Indian* concourse.

The traffic carried on in *Hudson's Bay* is chiefly brought from the chain of lakes and rivers that empty themselves into the bay at *Nelson's* river, running southerly from lat. 56 to lat. 45. Lake *Pachegoia* is the most northerly: there the *Indians* rendezvous in *March*, to make their canoes for the transportation of the furs; for at that season the bark of the birch-tree separates very easily from the wood.

41. MUSK.

Hist. Quad. N° 252.—Smellie, v. 260.

BE A V E R. With a thick nose, blunt at the end: ears short, hid in the fur: eyes large: body thick, and in form quite resembles that of the Beaver; its color, and that of the head, a reddish brown: breast and belly cinereous, tinged with rust-color: the fur is very soft and fine.

The toes on every foot are distinct and divided: those of the hind feet fringed on both sides with stiff hairs or bristles, closely set together: tail compressed, and thin at the edges, covered with small scales, with a few hairs intermixed.

1

Length,

Length, from nose to tail, one foot: of the tail nine inches.

These animals are in some parts of *America* called the Little Beaver, on account of its form, and some parts of its oeconomy. From its scent it is styled the Musk Rat, and Musquash. The *Hurons* call it *Ondatra*; from which *M. de Buffon* gives it the name of *Ondatra* *.

It is found from *Hudson's Bay* to as low at least as *Carolina* †. Like the Beaver, it forms its house of a round shape, covered with a dome, and constructed with herbs and reeds cemented with clay. At the bottom and sides are several pipes, through which they pass in search of food; for they do not lay in a stock of provision, like the former. They also form subterraneous passages, into which they retreat whenever their houses are attacked.

These houses are only intended for winter habitations; are deserted, and rebuilt annually. During summer, they live in pairs, and bring forth their young from three to six at a time. At approach of winter, they construct their houses, and retire into them, in order to be protected from the inclemency of the season. Several families occupy the same dwelling, which is oft-times covered many feet with snow and ice; but they creep out and feed on the roots which lie beneath. They are very fond of the *Acorus Verus*, or *Calamus Aromaticus* ‡. This perhaps gives them that strong musky smell these animals are so remarkable for; which they lose during winter, probably when this species of plant is not to be got. They also feed on the fresh-water Mussels. They feed too on fruit; for *Kalm* says, that apples are the baits used for them in traps. We may add, that in winter they eat the roots of nettles, and in summer, strawberries and raspberries ||, during which time it is rare to see the male and female separate.

The flesh is sometimes eaten. The fur is made use of in the manufacture of hats. The Musk-bag is sometimes put among cloths, to preserve them from worms or insects.

These animals, as well as the Beaver, seem to have their *Terriers*, or some which do not give themselves the trouble of building houses,

* L. 12.

† *Lawson*, 120.

‡ *Lawson*, 120.

|| *Charlevoix*, v. 158.

but burrow, like Water-rats, in banks adjacent to lakes, rivers, and ditches*, and often do much damage, by admitting the water through the embankments of meadows. They continue in their holes, except when they are in the water in search of food. They make their nests with sticks, placing a lining of some soft materials within†. *Charlevoix* ‡ adds, that they sometimes make use of a hollow tree for their residence.

When taken young, they are capable of being tamed; are very playful and inoffensive, and never bite.

* *Kalm*, ii. 56, and *Charlevoix*.

† *Kalm*, ii. 58.

‡ v. 158.

HIST. QUAD. GENUS XXVIII.

PORCUPINE.

Hist. Quad. N° 257.—LEV. MUS.

42. CANADA.

PORCUPINE. With short ears, hid in the fur: hair on the head, body, legs, and upper part of the tail, long, soft, and of a dark brown color; but sometimes found white: on the upper part of the head, body, and tail, are numbers of strong sharp quills; the longest, which are those on the back, are three inches long; the shortest are towards the head and on the sides, and concealed in the hair; mixed with them are certain stiff straggling hairs, at least three inches longer than the others, tipped with dirty white: the under side of the tail is white.

On each fore foot are four toes; on the hind five; all armed with long claws, hollowed on the under side.

The size of one, which Sir JOSEPH BANKS brought from *Newfoundland*, was about that of a Hare, but more compactly made; the back arched; and the whole form resembling that of the Beaver: the tail is six inches long, which, in walking, is carried a little bent upwards.

This species inhabits *America*, from *Hudson's Bay* to *Canada**, *Newfoundland*, *New England*, and, but rarely, as far south as *Virginia*†. *Lawson* makes no mention of it among the animals of *Carolina*. *Du Pratz*‡ says, it loves the cold, and is found on the banks of the *Illinois*. It may therefore be ranked among the local northern animals.

They are found in great plenty about *Hudson's Bay*, where the trading *Indians* depend much on them for food. They are reckoned excellent eating, even by the *Europeans*, tasting, when roasted, like suck-

* *Charlevoix*, v. 198.† *Catesby*, App. xxx.

‡ ii. 68.

ing-pig. The bones, during winter, are of a greenish yellow, owing, as is supposed, to their feeding during that season on the bark of the pine. It is observed, that the bones of animals sometimes take a tincture from their diet; for example, those of beasts which feed on madder become red*. They are also very fond of the bark of juniper. In summer, they live on the wild fruits, and lap water, but will not go into it. In winter, take snow by way of beverage.

They nestle under the roots of great trees, and will also, in quest of fruits, ascend the boughs. When the *Indians* discover one in a tree, they cut it down, and kill the animal by a blow on the nose.

They defend themselves with their quills. They fly from their pursuer; but when they cannot escape, will sidle towards their enemy, in order to push their quills into him: they are but weak instruments of offence; for a small stroke with the hand against the grain will bring them from the skin, leaving them sticking slightly in the flesh. The *Indians* use them to make holes in their noses and ears, for the placing their nose and ear-rings, and other finery†. They also trim the edges of their deer-skin habits with fringes of dyed quills‡, or make pretty linings with them for the bark boxes.

They are very indolent animals, sleep much, and seldom travel a mile from their haunts||.

M. de Buffon gives two figures of this beast, under the name of *Le Coendou* and *L'Urfon*. The first he makes an inhabitant of *Brasil*: the last, of *Hudson's Bay*: but the *Coendou* is a very different animal§. The two figures he has exhibited are of our Porcupine in the winter and summer drefs, the hair growing thinner as the warm season approaches¶. His *Coendou* shews it in the first state, his *Urfon* in the second**.

They are said to copulate in *September*, and to bring only one young, the first week in *April*; another, which it brings forth, being always dead††.

* *Phil. Trans.* lxii. 374.

† *Drage's voy.* i. 177.

‡ The same, 191.

|| *Mr. Graham,*

§ See *Syn. Quad.* No

¶ *Enw. Hist. Birds.* i. 52.

** *Hist. Nat.* xii. tab. lii. lv.

†† *Mr. Graham.*

HIST. QUAD. GENUS XXIX.

MARMOT.

Hist. Quad. N° 259.

Mus empetra, PALLAS Nov. Sp. Quad. fasc. i. 75.

43. QUEBEC.

MARMOT. With short rounded ears: blunt nose: cheeks swelled, and of a cinereous color: end of the nose black: top of the head chestnut: the hair on the back grey at the bottom, black in the middle, and the tips whitish: the belly and legs of a deep orange, or a bright ferruginous color.

Toes black, naked, and quite divided: four toes, with the rudiments of another, on the fore feet, five on the hind feet: tail short, dusky, and full of hair.

The specimen which I saw formerly at Mr. Brook's, alive, appeared larger than a Rabbit; but the specimen in the Royal Society's Museum* was only eleven inches long from nose to the tail, and the tail three inches. This probably was a young one.

Hist. Quad. N° 260.—Smellie, iv. 346.

44. MARYLAND.

MARMOT. With prominent dark eyes: short rounded ears: nose sharper-pointed than that of the last, and of a cinereous colour: head and body of a brown color, which is lighter on the sides, and still more so on the belly: the legs and feet dusky: toes long, and divided: claws long, and sharp: tail dusky, and bushy; half the length of the body: a specific distinction from the other kinds.

Size of a Rabbit.

* Phil. Trans. lxx. 378.

Inhabits

HOARY AND TAIL-LESS MARMOT.

Inhabits the temperate and warm parts of *North America*, from *Pennsylvania* to the *Bahama Islands*. It feeds on fruits, berries, and vegetables. In the provinces it inhabits the hollows of trees, or burrows under ground, sleeping for a month together. The *European* species continues dormant half the year: whether it takes a long sleep in the warm climate of the *Bahamas* I am uncertain. It dwells there among the rocks, and makes its retreat into the holes on the approach of the hunters. In those islands it is very fond of the berries of the *Ebretia Bourreria*, called there *Strong Back*. The flesh is reckoned very good, but resembles more that of a Pig than a Rabbit*.

It is called there the *Bahama Coney*. By Mr. *Edwards*, who figures one from *Maryland*, the *Monax*, or Marmot of *America* †.

45. HOARY.

Hist. Quad. N° 261.—*LEV. MUS.*

MARMOT. With the tip of the nose black: ears short, and oval: cheeks whitish: crown dusky and tawny: hair in all parts rude and long, on the back, sides, and belly, cinereous at the bottoms, black in the middle, and tipped with white, so as to spread a hoariness over the whole: legs black: claws dusky: tail full of hair, black and ferruginous.

Size of the preceding.

Inhabits the northern parts of *North America*.

46. TAIL-LESS.

Hist. Quad. N° —*LEV. MUS.*

MARMOT. With short ears: color of the head and body a cinereous brown: the extremities of the hairs white: two cutting teeth above, four below: no tail.

About the size of the common Marmot.

Inhabits *Hudson's Bay*.

* *Catesby Carol.* ii. 79. *App.* xxviii.

† *Hist. Birds*, ii. 104.

Hist.

Hist. Quad. N° 263.—Smellie, viii. 234.

47. EAR-LESS.

MARMOT. Without ears: face cinereous: back, and hind part of the head, of a light yellowish brown; sometimes spotted distinctly with white, at others undulated with grey: belly and legs of a yellowish white: tail about four inches and a half long. Length, from nose to tail, about nine and a half. But there is a pygmy variety wholly yellow, and with a short tail, frequent near the salt lakes, between the mouths of the *Taik* and the *Jemba*.

Inhabits *Bohemia*, *Austria*, and *Hungary*, and in the *Russian* empire; begins to be common about the *Occa*, east of *Moscow*; extends over all the temperate and open parts of *Siberia*, and about *Jakutsk*, and in *Kamtschatka*. It is also on the island of *Kadjak*, and was seen in great numbers by *Steller* on *Schamagin's* isles, almost close on the shore of *North America*, which give it place in this part of the work.

They burrow, and sink the pipes to their retreats obliquely, and then winding; and at the end is an arched oblong chamber, a foot in diameter, strewn with dried grass. The entrances, or pipes, of the males are of greater, and those of the females of lesser, diameters. Towards winter they make a new pipe to their nest, but that only reaches to the turf; and with the earth which is taken out they fill up the summer pipe.

They live entirely in a state of solitude, unless in the amorous season, when the females are found in the same burrows with the males; but they bring forth in their own burrows, and by that means prevent the males from destroying the young, as they cannot enter by reason of the narrowness of the pipes, the males being superior in size to their mates. They sleep all night; but in the morning quit their holes, especially in fine weather, and feed and sport till approach of night. If the males approach one another, they fight sharply. The females often set up a very sharp whistle; the males are, for the most part, silent. At the sight of a man, they

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instantly

instantly run into their burrows; and are often seen standing upright, and looking about them, as if on the watch: and if they spy any body, give a loud whistle, and disappear.

They are very easily tamed, and become very sportive and amusing; and are very fond of being stroked and cherished. In this state they will eat grain, and many sorts of herbs. In a wild state they prey on mice, and small birds, as well as vegetables. *Gmelin* says, that in *Siberia* they inhabit granaries; but I do not find it confirmed by Doctor *Pallas*. *Gmelin* adds, that those who frequent granaries, seek for prey during the whole winter*: as to the others, they certainly remain torpid all the severe season, and revive on the melting of the snows.

They bring forth from three to eight at a time. The young grow very quick, and desert the maternal burrows in the summer.

Their enemies are all sorts of Weefels, which dig them out of their holes. More males than females perish, as the latter are fiercer, and defend themselves much better. During day they are snatched up by hawks and hungry crows.

In some places they are taken in snares, for the sake of their skins, which are usually sent to *Cbina*. The *Kamtschatkans* make most elegant garments and hoods of them; specimens of the latter are preserved in the *Leverian Museum*. In *Siberia* their flesh is esteemed a great delicacy, especially in autumn, when they are a lump of fat.

The *Russians* call them *Suslik*; the *Siberians*, *Jevrascha*, and *Jemuranka*; the *Kamtschatkans*, *Syræth*.

* *Voyage en Sibirie*, i. 378.



A. BOBAC, *Hist. Quad.* N° 262.—*Smellie*, vii. 198.

MARMOT. With short oval thick ears: small eyes: upper part of the body greyish, mixed with long black and dusky hairs, tipped with grey: throat rust-colored: rest of the body and inside of the limbs yellowish rust: four claws on the fore feet, and a short thumb furnished with a strong claw: five toes behind: tail short, slender, and full of hair. Length sixteen inches: of the tail five.

Inhabits *Poland*, the *Ukraine*, *Tartary*, *Siberia*, and even in plenty in *Kamtschatka*.

Its manners most amply described in the *History of Quadrupeds*.

SQUIRREL.

HIST. QUAD. GENUS XXX.

N. B. The ears of the *American* Squirrels have no tufts.

48. HUDSON.

Hudson's Bay Squirrel, *Hist. Quad.* N^o 274.—LEV. MUS.

SQUIRREL. Of a ferruginous colour, marked along the top of the back with a line of a deeper hue: belly of a pale ash-color, mottled with black, and divided from the sides by a dusky line: tail shorter and less bushy than that of the *European* kind; of a rust-color, barred, and sometimes edged with black.

Inhabits the pine-forests of *Hudson's Bay* and *Labrador*: live upon the cones: keep in their nests the whole winter. Are found as high as the Copper river; yet do not change their colors by the severity of the winter, like the *Potius gris* of northern *Europe* and *Asia*, from which they form a distinct species. I know of only one exception in change of color in those of *America*, Sir *Ashton Lever* being possessed of a specimen of a milky whiteness; but he did not know from what part of the continent it came.

- a. *Carolina* *. With the head, back, and sides, grey, white, and ferruginous, intermixed: belly white: the color divided from that of the sides by a rust-coloured line: lower part of the legs red: tail brown, mixed with black, and edged with white.

Both these are rather less than the *European* Squirrels.

49. GREY.

Hist. Quad. N^o 272.—*Smellie*, v. 321.—LEV. MUS.

SQUIRREL. With hair of a dull grey color, intermixed with black, and frequently tinged with dull yellow: belly white. But they vary, the body being sometimes of a fine uniform grey.

* Lesser Grey Squirrel, *Hist. Quad.* p.

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This is the largest of the genus, and grows to half the size of a Rabbit.

In *America* I do not discover this animal farther north than *New England**; from whence they are found in vast numbers as far south as *Louisiana*†. These, and the other species of Squirrels, are the greatest pests to the farmers of *North America*. They swarm in several of the provinces, and often descend in troops from the back settlements, and join the rest in their ravages on the plantations of mayz, and the various nuts and mast which that fertile country produces.

Those which migrate from the mountains generally arrive in autumn; instantly clear the ground of the fallen acorns, nuts, and mast, and form with them magazines for their winter provisions, in holes which they dig under ground for that purpose. They are often robbed of their hoards; for the colonists take great pains to find them out; and oft-times the hogs, which rove about the woods, root up and devour their magazines. It is from these that they supply themselves, from time to time, with provisions, quitting their nests, and returning with a sufficient stock to last them for some space; it being observed, that during winter they do not care to quit their warm retreat, unless on a visit to their storehouses; therefore, whenever they are observed to run about the woods in greater numbers than usual, it is a certain sign of the near approach of severe cold; for instinct directs them to lay in a greater stock than usual, least the inclemency of the weather should deprive them of access to their subterraneous magazines.

The damage which they do to the poor planters, by destroying the mayz, is incredible. They come by hundreds into the fields, climb up the stalks, and eat the sweet corn wrapt up in the heads, and will destroy a whole plantation in a night. For this reason they were proscribed. In some places the inhabitants were, each, obliged annually to bring in four Squirrels heads. In others, a sum was given,

* *Jesselyn's voy.* 86.

† *Boshy, i.* 361.

about:

about three pence, for every one that was killed. This proved such an encouragement, as to set all the idle people in the province in pursuit of them. *Pensylvania* paid, from *January* 1749 to *January* 1750, 8000*l.* currency : but on complaint being made by the deputies, that their treasuries were exhausted by these rewards, they were reduced to one half. How improved must the state of the *Americans* then be, in thirty-five years, to wage an expensive and successful war against its parent country, which before could not bear the charges of clearing the provinces from the ravages of these insignificant animals !

It has been observed, that the Squirrels are greatly multiplied within these few years, and that in proportion to the increase of the fields of mayz, which attract them from all parts ; I mean not only the grey species, but all the others.

They are eaten by some people, and are esteemed very delicate. Their skins, in *America*, are used for ladies shoes ; and are often imported into *England*, for lining or facing for cloaks.

They make their nests in hollow trees, with moss, straw, wool, and other warm materials. They chiefly inhabit trees of the deciduous kind ; but sometimes in pines, whose cones are an article of their provision. They keep their nests for several days together, seldom stirring out, except for a fresh supply of food. Should a deep snow prevent them from getting to their storehouses, multitudes perish with hunger.

When they are sitting on a bough, and perceive a man, they instantly move their tails backward and forward, and gnash their teeth with a very considerable noise. This makes them detested by the sportsmen, who lose their game by the alarm they give. The GREY Squirrel is a difficult animal to kill : it sits on the highest trees, and often between the boughs, and changes its place with such expedition that the quickest marksman can scarcely find time to level his piece ; and if it can once get into a hole, or into any old nest, nothing

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can provoke it to get out of its asylum. They run up and down the bodies of trees, but very rarely leap from one to the other.

They are easily made tame; will even be brought to play with cats and dogs, which in a state of domesticity will not hurt them. They will also attach themselves so far as to follow children to and from the woods.

They agree in their manner of feeding with the *European* kinds; and have all the same sort of attitudes.

SQUIRREL. With coarse fur, mixed with dirty white and black: the throat, and inside of the legs and thighs, black: the tail is much shorter than is usual with Squirrels, and of a dull yellow, mixed with black: in size equal to that of the Grey.

β. CAT.

Inhabits *Virginia*. Mr. *Knaplan*, in whose collection I found it, informed me, that the planters called it the *Cat Squirrel*.

I suspect that this animal is only a variety. *Lawson* * says, that he has seen the Grey species pied, reddish, and black; but this point must be determined by natives of the countries which they inhabit, who, from observation, may decide by their manners, or their colors, in different seasons, or periods of life.

Hist. Quad. N° 273.—*Brown's Zoology*, tab. xlvii.—*LEV. Mus.*

50. BLACK.

SQUIRREL. With white ears, nose, and feet: the body totally black: the tail black, tip with white: in size equal to the former.

These sometimes vary: there being examples of individuals which are wholly destitute of any white marks. The beautiful figure of one of these animals from *East Florida*, in Mr. *Brown's Zoology*, has ears edged with white, and a much longer tail than usual.

* *Hist. Carol.* 124.

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Inhabits

Inhabits neither *Hudson's Bay* nor *Canada*, but is found in most other parts of *America*, as far as *Mexico* *. It is equally numerous, and as destructive to the mayz as the Grey Squirrel, but breeds and associates in troops separate from that species †; yet makes its nest in the same manner, and like it forms magazines of provision against the severe season.

In *Mexico*, and probably in other parts of *America*, they eat the cones of pine-trees; and lodge in the hollows of the trees.

A. With membranes from leg to leg.

51. FLYING.

Hist. Quad. N° 283.—Smellie, v. 307.—LEV. MUS.

SQUIRREL. With large black eyes: round and naked ears: a membrane, covered with hair, extending from the fore to the hind legs: the hairs on the tail disposed flatways on each side: are long in the middle, short towards the end, which tapers to a point: that and the body of a brownish cinereous: the belly white, tinged with yellow.

Inhabits all parts of *North America*, and as low as *Mexico*, where it is called *Quimichpatlan* †. The natives of *Virginia* named it *Affapanic* ‖.

They live in hollow trees. Like the *Dormouse*, they sleep the whole day; but towards night creep out, and are very lively and active. They are gregarious, numbers being found in one tree. By means of the lateral membranes, they take prodigious leaps, improperly called flying; and can spring ten yards at an effort. When they would leap, they extend the hind legs, and stretch

* Is the *Quaubtechallaliltic*, or *Tlilacotequillin*, of the *Mexicans*. *Fernandez*, 8.

† *Catesby*, ii. 73.

‡ *Fernand. Nov. Hisp.* 8.

‖ *Smith's Virginia*, 27.

out the intervening skin, which producing a larger surface, makes the animals specifically lighter than they would otherwise be: even with all this advantage, they cannot keep in a strait line, but are urged downward with their weight. Sensible of this, they mount the tree in proportion to the distance of the leap they propose to take, lest they should fall to the ground before they had reached a place of security.

They never willingly quit the trees, or run upon the ground, being constant residents of the branches. They go in troops of ten or twelve, and seem in their leaps, to people unaccustomed to them, like leaves blown off by the wind.

They bring three or four young at a time. They use the same food, and form their hoards like other Squirrels.

They are very easily tamed, and soon grow very familiar. They seem of a tender nature, and to love warmth, being very fond of creeping to the sleeve or pocket of the owner. If they are flung down, they shew their dislike to the ground, by instantly running up and sheltering themselves in his cloaths.

Hist. Quad. N° 284.

52. HOODED.

SQUIRREL. With the lateral skins beginning at the ears, uniting under the chin, and extending, like those of the former, from fore leg to hind leg: the ears naked, and rather long: the hairs on the tail disposed horizontally.

The color of the upper part of the body reddish: the lower part cinereous, tinged with yellow.

This species, according to *Seba*, who is the only person who has described or figured it, came from *Virginia* *. *Linnaeus* is very confused in his synonyms of this and the former kind; that of Mr. *Edwards* refers to the other species; and that of *Seba*, in his article of *Sciurus Volans*, to both †.

* *Seb. Mus. i. tab. xlv. p. 72.*

† *Syst. Nat. 85*, where he calls it *Mus Volans*; and p. 88, where he styles it *Sciurus*.

It is singular that there should be only one specimen ever brought of this species, from a country we have had such great intercourse with. It may perhaps be a monstrous variety, by the extent of the skin into a sort of hood. As to color, that is an accidental difference, which happens to numbers of other animals.

53. SEVERN
RIVER.

Hist. Quad. N° 282.

Greater Flying Squirrel, *Pb. Tr.* lxii. 379.

SQUIRREL. With the hair on the body and sides of a deep cinereous color at the bottom; the ends ferruginous: breast and belly of a yellowish white: the whole coat long and full: the tail thick of long hairs, disposed in a less flatted manner than those of the *European* kind; brown on the upper side, darkest at the end; the lower part of the same color with the belly: the lateral skin, the instrument of flight, disposed from leg to leg, in the same manner as in the first species, N° 51.

In size it is far superior to the common Flying Squirrel, being at least equal to the *English* kind.

This species is found in the southern parts of *Hudson's Bay*, in the forests of the country bordering on *Severn river* in *James's bay*.



A. COMMON. *Hist. Quad.* N° 266.—*Smellie*, iv. 268.—*LEV. Mus.*

SQUIRREL. With tufted ears: head, body, and legs, ferruginous: breast and belly white: tail reddish brown.

This species inhabits the northern world, as high as *Lapmark*; is

continued through all the Arctic countries, whereforever wood is found; abounds throughout *Siberia*, except in the north-east parts, and in *Kamtchatka*, where it ceases, by reason of the cessation of forests.

In all these countries they are red in summer, but at approach of winter change to various and elegant greys. Their furs are of exquisite softness, and are the sorts known to us by the name of *Petit Gris*. In the more southerly parts of these cold climates, they retain a tinge of the summer red, and are less valuable. The change of color is effected gradually, as is its return in spring to its ferruginous coat.

It is very singular, that the alteration is not only performed in the severity of the open air, but even in the warmth of a stove. Dr. *Pallas* made the experiment on one which was brought to him on the 12th of *September*, and was at that time entirely red. About the 4th of *October* many parts of the body began to grow hoary; and at the time it happened to die, which was on the 4th of *November*, the whole body had attained a grey color, and the legs, and a small part of the face, had alone the reddish tinge*.

The varieties are as follow:—A blackish one, with the fur footy tipped with red, and full black glossy tail, are common about lake *Baikal*, and the whole course of the *Lena*. Sir *Ashton Lever* is in possession of one of a jetty blackness, with a white belly: its ears, as well as those of all the *Petit Gris*, are adorned with very long tufts. These change in winter to a lead-color, and are taken in the thick *Alpine* forests, where the *Pinus Cembra*, or Stone Pines, abound. The skins of these are neglected by the *Chinese*, but greatly esteemed in *Europe*, especially the tails, for facings of dresses.

This variety is observed sometimes to migrate in amazing numbers from their lofty alpine abodes, compelled to it whenever there happens to be a scarcity of provision†. Swarms have appeared even

* *Nov. Sp. Quad.* 373.

† *Nov. Sp. an.* 188.

EUROPEAN FLYING SQUIRREL.

in the town of *Tomsk*, in deserted houses, and in the towers of the fortifications; where numbers are taken alive, and of great size, by the children of the place.

A beautiful and large variety, about the *Baraba*, called the *Teleutian*, is in great esteem for its beautiful grey color, like a Gull's back, with a silvery gloss, and finely undulated. Their summer color is usually dusky red, and the sides and feet black. These are highly esteemed by the *Chinese*, and sell at the rate of 6 or 7*l.* sterling per thousand *

A small variety of this, lesser even than the common kind, is met with about the neighborhood of the *Kasym* and *Iset*.

A variety is also met with which change to a white color; and others again retain a white color both in winter and summer.

The late navigators to the Icy sea brought home with them from *Pulo Condor*, a knot of islands in north lat. 8. 40. on the coast of *Cambodia*, a Squirrel totally black.

B. EUROPEAN FLYING SQUIRREL, *Hist. Quad.* N° 285.—*Smellie*, v. 307.—*LEV. MUS.*

SQUIRREL. With naked ears: flying membranes extending from the middle of the hind legs to the base of the fore feet, and spreading there in a rounded sail: tail full of hair, and round at the end: color of the upper part of the body a fine grey, like that of a Gull's back: the lower part white.

Length to the tail four inches and a quarter; of the tail, five.

Inhabits the birch-woods of *Finmark*, *Lapland*, *Finland*, *Lithuania*, and *Livonia*. Is found in *Asia*, in the woods of the *Urallian* chain, and from thence to the river *Kolyma*. Nests in the hollows of trees remote from the ground, where it makes its nest of the softest mosses. Is always solitary, except in the breeding-season, and never appears

* *Mem. Russ. Asiat.* vii. 124.

EUROPEAN FLYING SQUIRREL.

125

in the day-time. Lives on the buds and catkins of the birch, and on the shoots and buds of pines, which give its juices a strong resinous smell; and its excrements will burn strongly, with a pitchy scent. The last are always found at the root of the tree, as if the animal descended to ease nature. It seldom comes out in bad weather; but certainly does not remain torpid during winter; for it is often taken in the traps laid for the Grey Squirrels. The skins are often put up in the bundles with the latter, so that the purchaser is defrauded, as their fur is of no value. They leap at vast distances from tree to tree, and never descend but for the purpose before mentioned. By reason of similitude of color between them and the birch bark, they are seen with great difficulty, which preserves them from the attacks of rapacious birds.

They bring forth two, three, and rarely four, young at a time. When the parent goes out for food, she laps them carefully up in the moss. They are very difficult to be preserved, and seldom can be kept alive, by reason of want of proper food. They are born blind, and continue so fourteen days. The mother pays them great attention; broods over them, and covers them with its flying membrane. The *Russians* call them *Ljetaga*, or the *Flying*.

HIST.

DORMOUSE.

HIST. QUAD. GENUS XXXI.

54. STRIPED.

Ground Squirrel, *Hist. Quad.* N° 286.—*Smellie*, v. 329.—*LEV. MUS.*

DORMOUSE. With naked rounded ears: the eyes full and black; about them a whitish space: the head, body, and tail, of a reddish brown, deepest on the last: from neck to tail a black line extends along the top of the back: on each side run two others, parallel to the former, including between them another of a yellowish white: breast and belly white: the toes almost naked, and of a flesh-color; long, slender, and very distinct; four, with the rudiment of a fifth, on the fore feet; five perfect toes on the hind.

SIZE.

The length is about five inches and a half; of the tail, to the end of the hairs, rather longer.

Inhabits all parts of *North America*, I think, from *Hudson's Bay* to *Louisiana*; certainly from *Canada*, where the *French* call them *Les Suisses*, from their skins being rayed with black and white, like the breeches of the *Switzers* who form the Pope's guard*.

They are extremely numerous: live in woods, yet never run up trees, except when pursued, and find no other means of escape. They live under ground, burrow, and form their habitations with two entrances, that they may secure a retreat through the one, in case the other should be stopped. These little animals form their subterraneous dwellings with great skill, working them into the form of long galleries, with branches on each side, every one terminating in an enlarged apartment, in which they hoard their stock of winter provision†. Their acorns are lodged in one, in a second the mayz, in a third the hickery-nuts, and in the last their most favorite food,

* *Charlevoix*, v. 198.† *Kalm*, i. 322. 325.

the *Chinquagin*, or chesnut. Nature has given to them, as to the *Hamster**, a fine conveniency for collecting its provisions, having furnished them with pouches within their cheeks, which they fill with mayz, and other articles of food, and so convey them to their magazines.

Those of *Siberia* live chiefly on seeds, and particularly on the kernels of the *Cembra*, or Stone Pine; and these they hoard up in such quantities, that ten or fifteen pounds of the most choice have been found in a single magazine †.

They pass the whole winter either in sleep or in eating. During the severe season, they very rarely stir out, at least as long as their provisions last; but if by an unexpected continuance of bad weather their provisions fail, they will then sally out, and dig underground in cellars where apples are kept, or into barns where mayz is stored; and make great devastations. They will even enter houses, and eat undismayed, before the inhabitants, any corn they chance to meet with ‡. The Cat makes great havock among them, being at all seasons as great an enemy to them as to domestic Mice. It is hunger alone that tames them. They are naturally of a very wild nature, will bite most severely, and cannot by any means be rendered familiar.

They are remarkably nice in the choice of their food, when the variety of autumnal provisions gives opportunity. They have been observed, after having stuffed their pouches with the grains of rye, to fling it out when they meet with wheat, and to replace the rye with the more delicious corn.

Their skins, form a trifling article of commerce, being brought over among *la menue pelliterie*, the small furs, and used for the lining of ladies cloaks.

In *Siberia* they are killed with blunt arrows, or caught in fall-traps. About the *Lena*, the boys go out in the amorous season of these little animals, and, standing behind a tree, mimic the noise of the females, which brings the males within reach of their sticks, with which

* *Hist. Quad.* N° 324.

† *Pallas, Nov. Sp. an.* 379.

‡ *Du Pratz*, ii. 68.
they

they kill them. The skins are sold to the *Chinese* merchants. About the *Lena*, a thousand of their skins are not valued at more than six or eight rubles*.

These animals are found in great numbers in *Asia*, beginning about the river *Kama* †, and from thence growing more and more frequent in the wooded parts of *Siberia*; but these, and all the species of Squirrel, cease towards the north-east extremity of the country, by reason of the interruption of woods, which cuts them off from *Kamtshatka*.

55. ENGLISH ? Dormouse, *Br. Zool.* i. N° 234.—*Hist. Quad.* N° 289.—*Smellie*, iv. 334.—*LEV. Mus.*

Mr. *Lawson* says that the *English* Dormouse is found in *Carolina*; but it has not as yet been transmitted to *Great Britain*. In order to ascertain the species, I add a brief description.

DORMOUSE. With full black eyes: broad, thin, semi-transparent ears: throat white: rest of the body and the tail of a tawny red. Size of the common Mouse; but the body of a plumper form, and the nose more blunt: tail two inches and a half long, covered on every side with hair.

In *Europe*, inhabits thickets; forms its nest at the bottom of a tree or shrub; forms magazines of nuts for winter food; sits up to eat, like the Squirrel; lies torpid most of the winter; in its retreat, rolled up into the shape of a ball; retires to its nest at approach of cold weather.

* *Pallas, Nov. Sp. an.* 380.

† A river falling into the *Volga* about forty miles below *Casan*.

HIST. QUAD. GENUS XXXIII.

RAT.

Br. Zool. i. N° 25.—Hist. Quad. N° 297.—Smellie, iv. 275.—LEV. Mus.

56. BLACK.

RAT. With head and body of a very deep iron grey, nearly black: belly ash-colored: legs almost naked, and dusky: a claw instead of a fifth thumb on the fore feet. Length, from nose to tail, seven inches; tail near eight.

Inhabits *North America*, not only the settled parts, but even the rocks of the *Blue mountains**, remote from all human dwellings. There they live among the stones, and in the subterraneous grottos frequent in those hills. They lie close during day, but at night come out, and make a most horrible noise amidst these *American* alps. In violent frosts they lie torpid; and in the inhabited parts of the country they are observed to redouble their screams before severe weather, as if they had some presage from their constitutions.

By Mr. *Bartram*'s observations it appears very certain, that these animals are natives of *America*. They are found even at present in the most desolate places, as well as in the houses and barns of the inhabited parts. It is unknown in *Europe*, that either the common Rat or Mouse ever deserted the haunts of mankind, for rocks and deserts: they therefore have been there from the earliest times. It is likely, that if ever the *Blue mountains* become inhabited, the wild Rats will quit their rocks, and resort to those places where they find harvested food, and will quickly become perniciously domestic.

We are positively told, that *South America* was free from these troublesome animals, till they were introduced there from *Europe*, by the means of ships, in 1544†.

* *Bartram*, as quoted by Mr. *Kalm*, ii. 47.† *Garcilasso de la Vega*, 384.

S

We

BROWN, AMERICAN, AND WATER, RAT.

We find none of the species in *Kamtschatka*, nor any where to the east of the *Uralian* chain. *America* must therefore have been stocked with them from the side of *Europe*. They are very common in *Russia*. Towards *Astracan* they are very small, but of the same color with the others.

57. BROWN.

Br. Zool. i. N° 26.—*Hist. Quad.* N° 298.—*Smellie*, iv. 336.—*LEV. Mus.*

RAT. Above, light brown mixed with tawny, dusky, and cinereous: below, of a dirty white: four toes before, and a claw instead of a fifth toe.

I have no authority for giving this species a place here: but must suppose that the new world could not possibly escape the pest, as it is universally become a most destructive inhabitant of *European* ships.

58. AMERICAN.

Hist. Quad. N° 299.

Characho, Jike Cholgomar, or Great Mouse of the *Monguls*.—*LEV. Mus.*

RAT. With the upper jaw extending very far beyond the lower: ears large and naked: tail rather shorter, in proportion, than that of the Black, to which it is rather superior in size: color a dusky brown.

The specimen, from which this description is taken, was sent from *North America* to Sir *Ashton Lever*; but I am not informed, whether it only frequented the deserts, or infested houses.

59. WATER.

Br. Zool. N° 300.—*Hist. Quad.* N° 300.—*Smellie*, iv. 290.—*LEV. Mus.*

RAT. With small eyes: ears covered with the fur: teeth yellow: body covered with long hairs, black mixed with a few of a rust-color: belly of a deep grey.

Length

MOUSE, AND FIELD RAT.

131

Length of the head and body seven inches; tail five, covered with short black hairs. Weight nine ounces.

Inhabits *North America*, from *Canada* to *Carolina**. In the first, varies to tawny and to white†: feeds on the fry of fish, insects, shell-fish, frogs, and roots; burrows on the banks of ponds and rivers; and dives and swims as well as an Otter, notwithstanding it is not web-footed.

In northern *Europe* and *Asia* it is extremely common; from *Petersburgh* to *Kamtschatka* in *Siberia*, they are twice as large as in other places. They are found also from *Lapland* to the *Caspian* sea, and also in *Persia*; and are one of the animals which endure the cold of the Arctic circle.

Br. Zool. i. N° 30.—Hist. Quad. N° 301.—Smellie, iv. 282.—LEV. Mus.

60. MOUSE.

THIS common animal needs no description. It is very abundant in the inhabited parts of *America*†, and is to be found from *Petersburgh* perhaps as far as *Kamtschatka*.

Kalm imagines them to be natives of *America*; for he assures us that he has killed them in the crevices of the rocks in desert places, far from the haunt of man‖.

Hist. Quad. N° 302. a. AMERICAN.—Smellie, iv. 285.—LEV. Mus.

61. FIELD.

RAT. With great, naked, and open ears: cheeks, space below the ears, and sides quite to the tail, orange-colored: back dusky and rust-colored, marked along the top, from head to tail, with a dark line: throat, breast, and belly, of a pure white: tail dusky above, white beneath: feet white: hind legs longer than those of the *English* kind.

Length about four inches and a half; of the tail, four inches.

Inhabits *Hudson's Bay* and *New York*.

* *Lawson Carolina*, 122.

† *De Buffon*, xiv. 401.

‡ *Kalm*, ii. 46.

‖ The same, 47.

62. VIRGINIAN.

Hist. Quad. N° 307.

RAT. With a black nose: fur short, and in all parts white: limbs slender: tail very thick at the base, tapering to a point, and cloathed with long hair.

Seba alone, vol. i. p. 76. tab. xlvii. fig. 4, describes this species.

63. LABRADOR.

Hist. Quad. N° 295.

RAT. With a blunt nose: mouth placed far below: upper lip bifid: ears large, naked, rounded: fore legs short, furnished with four toes, and a tubercle instead of a thumb: HIND LEGS long and naked, like some of the *ferboas*: toes long, slender, and distinct; the exterior toe the shortest: thumb short.

SIZE.

The whole length of the animal is eight inches, of which the tail is four and three quarters.

COLORS.

Color above a deep brown, beneath white, separated on each side by a yellow line.

Inhabits *Hudson's Bay* and *Labrador*. Sent over by Mr. *Graham*.

** With short tails.

64. HUDSON'S.

Hist. Quad. N° 319.—*LEV. MUS.*

RAT. With soft long hair, dusky at the bottom, whitish brown at the points: along the middle of the back, from head to tail, runs a dusky line: sides yellowish: belly and inside of the thighs of a dirty white.

Legs very short: on the toes of the fore feet of the male only are four very large and sharp claws, tuberculated beneath; in the female smaller and weaker: on the hind feet five toes with slender claws.

Tail

MEADOW AND HARE-TAILED RAT.

133

Tail not three quarters of an inch long, terminating with long stiff hairs; it is scarcely visible, being almost lost in the fur.

Described from a skin which Doctor *Pallas* favored me with, which he received from the *Labrador* coast.

This is nearly a-kin to the *Lemmus*.

Short-tailed Field Mouse? *Br. Zool. i. N° 31.*—*Hist. Quad. N° 322*?—*Smellie,* 65. MEADOW?
iv. 293.—*LEV. Mus.*

RAT. With a blunt nose: great head: prominent eyes: ears buried in the fur: head and upper part of the body of a ferruginous brown mixed with black: belly of a deep ash-color.

Length, from head to tail, six inches; tail only one and a half, with a small tuft at the end.

Inhabits *Hudson's Bay* and *Newfoundland*, in the last very numerous, and does vast damage in the gardens; resides under ground.

Hist. Quad. N° 320.

66. HARE-TAILED.

RAT. With small and rounded ears: head broad; color dusky and tawny brown: the belly of a dirty white: a dusky line passes from between the eyes, and extends obscurely along the back. Larger than the common Mouse. Described from so mutilated a specimen, sent to the Royal Society from *Hudson's Bay**, that it was impossible to determine the species; only, by the dark line along the back, it seemed likest the HARE-TAILED, an inhabitant of *Siberia*, whose manners are described in the History of Quadrupeds.

* *Ph. Tr. lxii. 379. Sp. 15.*

ECONOMIC.



A. ECONOMIC, *Hist. Quad.* N° 313—*Descr. Kamtschatka*, Fr. ed. 392.

RAT. With naked ears, usually hid in the fur: small eyes: teeth tawny: limbs strong: color, an intermixture of black and yellow, darkest on the back: under side hoary.

Length four inches and a quarter, to the tail; the tail one inch.

Inhabits in vast abundance *Siberia*, from the east side of the *Uralian* chain, even within the Arctic circle, and quite to *Kamtschatka*. It is the noted *Tegultschitch* of that country, distinguished by its curious oeconomy and by its vast migrations.

They make their burrows with the greatest skill, immediately below the surface of the soft turfy soil. They form a chamber of a flattish arched form, of a small height, and about a foot in diameter, to which they sometimes add as many as thirty small pipes or entrances. Near the chamber they often form other caverns, in which they lodge their winter stores: these consist of various kinds of plants, even some of species poisonous to mankind. They gather them in summer, harvest them, and even at times bring them out of the cells to give them a more thorough drying in the sun. The chief labor rests on the females. The males, during summer, go about solitary, and inhabit some old nests; and in that season never touch their hoards, but live on berries. They are monogamous, and the male and female at other times found in the same nest. The female brings two or three young at a time, and breeds often in the year.

No little animals are so respected by the *Kamtshatkans* as these, for to them they owe a delicious food; and with great joy, about autumn, rob the hoards, and leave there many ridiculous presents by way of amends: they also never take the whole of their provisions, and leave besides a little dried ovaries of fish for their support.

But the migrations of these Mice, in certain years, is as extraordinary a fact as any in natural history: I will only mention those of *Kamtshatka*. The cause is unknown. Doctor *Pallas* thinks it may arise from the sensations of internal fire in that volcanic tract, or a prescience of some unusual and bad season. They gather together in the spring in amazing numbers, except the few that are conversant about villages, where they can pick up some subsistence. This makes it probable that the country is over-stocked, and they quit it for want of food. The mighty host proceeds in a direct course westward, and with the utmost intrepidity swims over rivers, lakes, and even arms of the sea: many are drowned, many destroyed by waterfowl, or rapacious fish; those which escape rest awhile, to bask, dry their fur, and refresh themselves. If the inhabitants find them in that situation, they treat them with the utmost tenderness, and endeavour to bring them to life and vigor. As soon as they have crossed the river *Penschim*, at the head of the gulph of the same name, they turn southward, and reach the rivers *Judoma* and *Ochot* by the middle of July. The space is most surprising, on consulting the map of the country. The flocks are also so numerous, that an observer has waited two hours to see them all pass. Their return into *Kamtshatka*, in *October*, is attended with the utmost festivity and welcome. The natives consider it as a sure prognostic of a successful chase and fishery: the first is certain, as the Mice are always followed by multitudes of beasts of prey. They equally lament their migration, as the season is certainly filled with rains and tempests.

MIGRATIONS.

RED,

B. RED, *Hist. Quad.* N° 314:

RAT. With bristly nose and face: ears oval, rising above the hair, naked, only tipped with fur: color, from forehead to rump, a bright red: sides light grey and yellow: belly whitish: tail dusky above, light below.

Length not four inches; tail more than one.

Grow very common beyond the *Ob*, and live scattered over all *Siberia*, in woods and mountains, and about villages; extend even to the Arctic circle. It is the *Tschetanaustschu*, or *Red Mouse* of the *Kamtchatkans*. It is a sort of drone: makes no provision for itself, but robs the hoards of the last species*. Lives under logs of trees; frequents houses; dares the severest weather, and is abroad amidst the snows; feeds on any thing, and is often caught in the traps set for *Ermings*, in attempting to devour the bait.

C. LEMMUS, *Hist. Quad.* N° 317.—Godde Saeppan, *Leems*, 224.

RAT. With small eyes and mouth: upper lip divided: ears small, placed far backwards: four slender toes on the fore feet, and a sharp claw, like a cock's spur, in place of a thumb: skin very thin. Color of the head black and tawny, of the belly yellow.

Length of those of *Scandinavian Lapland*, above five inches; those of the *Russian* dominions not four.

The manners and wonderful migrations of the *Lemmi* of *Europe*, have been fully treated of in my *History of Quadrupeds*.

They abound in the countries from the *White Sea* to the gulph of the *Oby*, and in the northern end of the *Urallian* chain; but differ in size and color from those of *Europe*. Like them, they migrate at certain periods; and tend from the *Urallian* mountains, sometimes towards *Jenesei*, sometimes towards *Petzorah*, and at those times re-

* *Descr. Kamtschatka*, 392.

LENA AND RINGED RAT.

137

joice the *Samoeds* with a rich chase of the animals which pursue the wanderers. The *Samoeds* assert, that the Rein-Deer will greedily devour them; perhaps they take them medicinally, as Sheep are known as greedily to seek and swallow Spiders.

D. LENA, *Mus Gmelini*, *Pallas*, *Nov. Sp. an.* 195.

RAT. With short round ears: white whiskers: thick broad body, in all parts nearly of equal breadth: tail short, thickly covered with rude hairs: five toes on the fore feet, with claws very strong and white: four on the hind feet, with claws much weaker: the fur pretty long; three parts of its length, from the roots, cinereous, the rest white; so that the animal appears entirely white, except the cheeks, which are ash-colored, and the chin, which is dusky.

The length is three inches one-fifth, the tail four-fifths of an inch.

They are seen in great numbers in autumn, on the borders of the Icy Sea, and about the parts of the *Lena* that fall into it. They appear suddenly, and depart as expeditiously. They feed on the roots of mosses, and are themselves the food of *Arctic* Foxes. Perhaps they extend to the *Jenesei*: for it is said that there are two sorts of Mice found there; one wholly white; the other black, yellow, and white, which perhaps is the *Lemmus* *.

E. RINGED, *Hist. Quad.* N° 205.

RAT. With a blunt nose: ears hid in the fur: hair very fine: claws strong and hooked: color of the upper part, sometimes ferruginous, sometimes light grey undulated with deep rust-color: a crescent of white extends on each, from the hind part of the head towards the throat, bounded on each side by a bed of rust-color.

* *Nov. Sp. an.* 197.

T

Length

T C H E L A G R A T.

Length to the tail little more than three inches; tail one, terminated by a bristly tuft.

Found in the *Arctic* neighborhood of the *Oby*. Makes its nest with rein-deer and snowy liver-worts, just beneath the turfy surface. Are said to migrate, like the *Lemmus*.

F. TCHELAG, *Descr. Kamtschatka*, 392.

THE author of the description of that great peninsula says no more than that it is a very small species; frequents houses; and will go out and eat boldly any thing it has stolen. The natives call it *Tchelagatchitch*.

HIST.

HIST QUAD. GENUS XXXIX.

SHREW.

Br. Zool. i. N° 32.—Hist. Quad. N° 341.—Smellie, iv. 305.

67. FŒTID ?

SHREW. With the head and upper part of the body dusky: sides of a brownish rust-color: eyes very small, almost hid in the fur: ears short: nose very long and slender: upper mandible extends far beyond the lower.

Inhabits *Hudson's Bay*, and probably *Carolina*, as *Lawson* mentions a Mouse found there which poisons Cats * if they eat it. It is a notion in *England* that they are venomous: it is notorious that our Cats will kill, but not feed on them; probably those of *America* have the same instinct: so that their deaths in the new world must arise from some other cause, and be falsely attributed to these animals.

Mr. *Graham* sent over two other specimens, besides that described. They were of a dusky grey above, and of a yellowish white beneath: their size, rather less than the *English* kind; one being only two inches and a quarter long, the other only two inches; but they seemed not to differ specifically from the other.

The common Shrew is found in *Russia*; in all parts of *Siberia*, even in the *Arctic* flats; and in *Kamtschatka*.

* Hist. Carolina, 125.

MOLE.

HIST. QUAD. GENUS XXXV.

68. LONG-TAILED.

Hist. Quad. N° 352.—*LEV. MUS.*

MOLE. With two cutting teeth in each jaw, and two sharp slender canine: the grinders small and sharp: nose long, the end radiated with short tendrils: fore feet not so broad as those of the *English* Mole, furnished with very long white claws: toes on the hind feet quite separated: body not so thick and full as that of the common species: hair long, soft, and of a rusty brown: tail covered with short hair.

Length of the body four inches two-tenths; of the tail, two and a half.

Inhabits *North America*. Received from *New York*.

69. RADIATED.

Hist. Quad. N° 351.—*Smellie*, iv. 316.—*LEV. MUS.*

MOLE. With a long nose, radiated like the former: the body shorter, and more full: hair dusky, very long, fine, and compact: fore feet resembling those of the preceding; but the toes of the hind feet are closely connected.

Length to the tail three inches three quarters: the tail slender, round, and taper, one inch three-tenths long.

Received from *New York*.

MANNERS.

This species forms subterraneous passages in the fields, running in various directions, and very shallow. Their course may be traced by the elevation of the earth on the surface, in form of a little bank, two inches high, and as broad as a man's hand. These holes are unable to support any weight, so that walkers find it very trouble-

some.

some to go over places where these animals inhabit, the ground perpetually breaking under their feet *.

These Moles have all the strength in their legs as those of *Europe*, and work in the same manner. They feed on roots, are very irascible, and will bite very severely.

Hist. Quad. N° 353.—*LEV. MUS.*

70. BROWN.

MOLE. With a long and very slender nose: two broad cutting teeth in the upper, four sharp and slender in the lower, jaw; the two middlemost short: the grinders very numerous, strong, sharp, and separate: the fore feet very broad; those and the hind feet exactly like those of the *European* kind.

Length about six inches; tail one.

I received two specimens of this animal from *New York*. The hair in both soft, silky, and glossy: the hair in each dusky at the bottom; but in one, the ends were of a yellowish brown; in the other, brown: the feet and tail of both were white. I suspect that they were varieties of the kind described by *Seba* †, which he got from *Virginia*: it was totally black, glossed over with a most resplendent purple. I may here note, the Tail-less Mole, figured by *Seba* in the same plate, is not a native of *Siberia*, as he makes it; but is an inhabitant of the *Cape of Good Hope*.

PLACE.

These three species agree pretty nearly with the Shrew in the fore teeth; for which reason *Linnaeus* classes the two he describes among the *Sorices*. I call them Moles from their shape, which differs not from the *European* kind; but those who chuse to be very systematic, may divide the genus of Shrews, and style these *Sorices Talpa-formes*.

* *Kalm*, i. 190.

† *P.* 51. tab. xxxii.



A. EUROPEAN, *Hist. Quad.* ii. N^o Br. Zool. i.

MOLE. With six cutting teeth in the upper; eight in the lower jaw; and two canine teeth in each: color of the fur black.

PLACE.

Inhabits *Sweden*; but does not extend farther than the south of *Norway*, where it is called *Vond*. Is frequent in the temperate parts of *Russia*, and even in *Siberia*, as far as the *Lena*. In *Siberia* it is twice as big as those of *Europe*. Is found there milk-white, but more usually so in the *Verchoturian* mountains.

HEDGE-HOG, *Hist. Quad.* GENUS XXXVI.

B. COMMON, *Hist. Quad.* ii. N^o 355.—Br. Zool. i. N^o

HEDGE-HOG. With nostrils bounded on each side by a loose flap; ears rounded: back covered with prickles, white, barred with black: face, sides, and rump, with strong coarse hair: tail an inch long.

PLACE.

Is found in *Sweden*, in the diocese of *Aggerbuys*; and in that of *Bergen*, in *Norway**. It is called, in the *Norwegian* tongue, *Bustedyvel*. Is common in *Russia*, except in the extreme northern and southern parts. None in *Siberia*, or very scarce at least.

* *Leems*, 229. *Pentopidan*, ii. 28.

D I V. III.

PINNATED QUADRUPEDS;

Or, with FIN-LIKE FEET.

D I V. III. Pinnated Quadrupeds;
Or, with FIN-LIKE FEET.

WALRUS.

HIST. QUAD. GENUS XLI.

71. ARCTIC.

Hist. Quad. N° 373.—*Phipps's voy.* 184.

Rosmarus, Zimmerman, 330.

Le Tricheque, Schreber, ii. 82. tab. lxxix.

Cheval Marin, Hist. Kamtschatka, 427.—*Smellie*, vii. 354.—*LEV. MUS.*

DESCRIPTION.

WALRUS. With a round head; short neck; small and fiery eyes, sunk a finger's depth in the sockets, and retractile from external injuries*: mouth very small; lips very thick, beset above and below with great whiskers, composed of bristles, transparent, and thick as a straw: instead of ears are two minute orifices, placed in the most distant part of the head.

Body is very thick in the middle, lessening gradually towards the tail. The skin in general is an inch thick, and two about the neck †, and much wrinkled about the joints: it is covered with short hair, of a mouse-color; some with reddish, others with grey; others are almost bare, as if they were mangy, and full of scars ‡.

The legs are very short; on each foot are five toes, connected by webs, with a small blunt nail to each. The hind feet, like those of Seals, are very broad: the tail is very short: the penis two feet long, and of a bony substance.

* *Crantz*, i. 126.

† *Crantz*, i. 125.

‡ *Marten's Spitzberg*.

In the upper jaw are two very long tusks, bending downwards. No cutting teeth; but in each jaw, above and below, four grinders, flat at top, and the surfaces of those which I examined much worn. The length of the largest tusk I have heard of, was two feet three inches, *English* measure; the circumference at the lower end, eight and a half; the greatest weight of a single tusk twenty pounds: but such are rarely found, and only on the coasts of the *Icy* sea, where they are seldom molested, and of course permitted to attain their full growth*.

TEETH.

The Walrus is sometimes found of the length of eighteen feet, and the circumference, in the thickest part, ten or twelve. The weight from fifteen hundred to two thousand pounds.

SIZE.

Inhabits, in present times, the coasts of the *Magdalene* islands, in the gulph of *St. Laurence*, between latitude 47 and 48, their most southerly residence in any part of the globe. They are not found on the seas of *Labradore*. The *Eskimaux* purchase the teeth, for the heading their Seal-darts, from the *Indians* of *Nuckvank*, about lat. 60; who say, that they are annually visited in the winter by multitudes of these animals†. They are found in *Davis's Straights*, and within *Hudson's Bay*‡, in lat. 62. They also inhabit the coast of *Greenland*. I am uncertain whether they frequent *Iceland*; but they are found in great numbers near the islands of *Spitzbergen*, and on all the floating ice from thence to *Cherry Isle*, a solitary spot intermediate between the last and the most northerly point of *Norway*. In 1608, they were found there in such numbers, huddled on one another, like hogs, that a ship's crew killed above nine hundred in seven hours time§.

PLACE.

AMERICA.

SPITZBERGEN.

CHERRY ISLE.

If they are found in the seas of *Norway*, it is very rare|| in these days. *Leems*, p. 316, says that they sometimes frequent the sea about *Finmark*; but about the year 980, they seemed to have been so numerous in the northern parts, as to become objects of chase and

NORWAY.

* *Hist. Kamtschatka*, 120.

+ *Pb. Transf.* lxiv. 378.

† *Ellis's voy.* 80.

§ *Martens Spitzberg.* 182.

|| *Pontoppidan*, ii. 157.

U

commerce.

commerce. The famous *Otho* the *Norwegian*, a native of *Helgeland* in the diocese of *Drontheim*, incited by a most laudable curiosity and thirst of discovery, sailed to the north of his country, doubled the *North Cape*, and in three days from his departure arrived at the farthest place, frequented by the *Horse-whale* fishers. From thence he proceeded a voyage of three days more, and perhaps got into the *White Sea*. On his return he visited *England*, probably incited by the fame of King *Alfred's* abilities, and the great encouragement he gave to men of distinguished character in every profession. The traveller, as a proof of the authenticity of his relation, presented the *Saxon* monarch with some of the teeth of these animals, then a substitute of ivory, and valued at a high price. In his account of his voyage, he also added that their skins were used in the ships instead of ropes *.

NOVA ZEMBLA,
AND ICY SEA.

They are found again on the coasts of *Nova Zembla*, and on the headlands which stretch most towards the north Pole; and as far as the *Tschutki* point, and the isles off that promontory. They scarcely extend lower than the neighborhood of the country of the *Anadyr*, but are seen in great abundance about cape *Newnham*, on the coast of *America*. The natives of the islands off the *Tschutki Nofs* ornament themselves with pieces of the Walrus stuck through their lips or noses; for which reason they are called by their neighbors *Zoobatee*, or *large-teethed* †. The natives about *Unalaska*, *Sandwich Sound*, and *Turnagain* river, observe the same fashion. I entertain doubts whether these animals are of the same species with those of the Gulph of *St. Laurence*. The tusks of those of the *Frozen Sea* are much longer, more slender, and have a twist and inward curvature.

MANNERS.

They are gregarious, and sometimes have been found together in thousands; are very shy, and avoid the haunts of mankind. They usually are seen on the floating ice, preferring that for their residence, as their bodies require cooling, by reason of the heat which arises from their excessive fatness ‡.

* *Hackluyt*, i. 5.

† *Hist. Kamtschatka*, 47.

‡ *Nov. Com. Petrop.* ii. 291.

They

ARCTIC WALRUS.

147

They are monogamous; couple in *June*, and bring forth in the earliest spring *. They bring one †, or very rarely two young at a time; feed on sea-plants, fish, and shells, which they either dig out of the sand, or force from the rocks with their great teeth. They make use also of their teeth to ascend the islands of ice, by fastening them in the cracks, and by that means draw up their bodies.

They sleep both on the ice and in the water, and snore excessively loud ‡.

They are harmless, unless provoked; but when wounded, or attacked, grow very fierce, and are very vindictive. When surprised upon the ice, the females first provide for the safety of the young, by flinging it into the sea, and itself after it, carrying it to a secure distance, then returning with great rage to revenge the injury. They will sometimes attempt to fasten their teeth on the boats, with an intent to sink them, or rise in numbers under them to overturn them; at the same time they shew all marks of rage, by roaring in a dreadful manner, and gnashing their teeth with great violence; if once thoroughly irritated, the whole herd will follow the boats till they lose sight of them. They are strongly attached to each other, and will make every effort in their power, even to death, to set at liberty their harpooned companions §.

A wounded Walrus has been known to sink to the bottom, rise suddenly again, and bring up with it multitudes of others, who united in an attack on the boat from which the insult came §.

They fling the water out of their nostrils, as the Whale does out of its head. When chased hard, they commonly vomit, and fling up small stones. Their dung is like that of a Horse, and excessively fetid, especially where they are found in large companies.

The tongue, which is about the size of a Cow's, may be eaten, if boiled fresh; but if kept, soon runs into oil. The teeth used to be applied to all the purposes of ivory; but the animals are now killed

Uses.

* *Faun. Greenl.* 4.

† *Barentz*, 4.

‡ *Martens*, 109.

§ *Martens*, 110.

§ *Phipps's voy.* 57.

only for the sake of the oil. Seamen make rings of the bristles of the whiskers, which they wear as preservatives against the cramp. The *French* coach-makers have made traces for coaches of the skins, which are said to be strong and elastic *. The *Russians* formerly used the bone of the penis pulverised, as a remedy against the stone †. *Bartholinus* ‡ recommends it, infused in ale, in fits of the strangury. The *Greenlanders* eat the flesh and lard, and use the last in their lamps. Of the skin they make straps. They split the tendons into thread; and use the teeth to head their darts, or to make pegs in their boats.

Their only enemies, besides mankind, are the Polar Bears, with whom they have dreadful conflicts. Their feuds probably arise from the occupancy of the same piece of ice. The Walrus is usually victorious, through the superior advantage of its vast teeth ||. The effects of the battle are very evident; for it is not often that the hunters find a beast with two entire tusks §.

“ The Walrus, or Sea Cow, as it is called by the *Americans*,” says Lord *Shuldbam* ¶, “ is a native of the *Magdalene* islands, *St. John's*, “ and *Anticosti*, in the gulph of *St. Laurence*. They resort, very “ early in the spring, to the former of these places, which seems by “ nature particularly adapted to the nature of the animals, abound- “ ing with *clams* (escallops) of a very large size; and the most “ convenient landing-places, called *Echoueries*. Here they crawl up “ in great numbers, and remain sometimes for fourteen days together “ without food, when the weather is fair; but on the first appear- “ ance of rain, they retreat to the water with great precipitation.

* *De Buffon*.

† *Worm. Mus.* 290.

‡ As quoted in *Museum Regium Hafniæ*, &c. pars. i. sect. iii. 9.

|| *Egede*, 83.

§ *Crantz*, i. 126.

¶ *Phil. Transf.* lxxv. part. i. 249.

The *French* call them *Vaches Marines*. *Charlevoix*, v. 216. That voyager says, that the *English* had once a fishery of these animals on the *Isle de Sable*, a small island south of *Cape Breton*; but it turned out to no advantage.

“ They

“ They are, when out of the water, very unwieldy, and move with
“ great difficulty. They weigh from fifteen hundred to two thou-
“ sand pounds, producing, according to their size, from one to two
“ barrels of oil, which is boiled out of the fat between the skin and
“ the flesh. Immediately on their arrival, the females calve, and
“ engender again in two months after; so that they carry their young
“ about nine months. They never have more than two at a time,
“ and seldom more than one.

“ The *Echoueries** are formed principally by nature, being a gradual
“ slope of soft rock, with which the *Magdalene* islands abound, about
“ eighty or a hundred yards wide at the water-side, and spreading so
“ as to contain, near the summit, a very large number of these ani-
“ mals. Here they are suffered to come on shore, and amuse them-
“ selves for a considerable time, till they acquire a degree of bold-
“ ness, being at their first landing so exceedingly timid as to make
“ it impossible for any person to approach them.

“ In a few weeks they assemble in great multitudes: formerly, when
“ undisturbed by the *Americans*, to the amount of seven or eight
“ thousand. The form of the *Echouerie* not allowing them to re-
“ main contiguous to the water, the foremost are insensibly pushed
“ above the slope. When they are arrived at a convenient distance,
“ the hunters, being provided with a spear sharp on one side, like a
“ knife, with which they cut their throats, take advantage of a side
“ wind, or a breeze blowing obliquely upon the shore, to prevent
“ the animals from smelling them, because they have that sense in
“ great perfection. Having landed, the hunters, with the assistance
“ of good dogs, trained for that purpose, in the night-time endea-
“ vour to separate those which are most advanced from the others,
“ driving them different ways. This they call *making a cut*; it is
“ generally looked upon to be a most dangerous process, it being
“ impossible to drive them in any particular direction, and difficult
“ to avoid them; but as the Walruses, which are advanced above

* This word is derived from *Echouer*, to land, or run on shore.

" the slope of the *Echaurie*, are deprived by the darkness of the
" night from every direction to the water, they are left wandering
" about, and killed at leisure, those that are nearest the shore being
" the first victims. In this manner have been killed fifteen or six-
" teen hundred at a cut.

" The people then skin them, and take off a coat of fat which al-
" ways furrounds them, and dissolve it into oil. The skin is cut
" into slices of two or three inches wide, and exported to *America*
" for carriage traces, and into *England* for glue. The teeth make
" an inferior sort of ivory, and is manufactured for that purpose;
" but very soon turns yellow."

COMMON SEAL.

151

HIST. QUAD. GENUS XLII.

SEAL.

Br. Zool. i. N° 71.—Hist. Quad. N° 375.—Smellie.
Kaffigiak, Faun. Greenl. N° 6.—LEV. Mus.

72. COMMON.

SEAL. With a flat head and nose: large black eyes: large whiskers: six cutting teeth in the upper jaw; four in the lower: two canine teeth in each jaw: no external ears: hair on all parts short and thick: five toes on each foot, furnished with strong sharp claws, and strongly webbed: tail short and flat.

Usual length of this species, from five to six feet. Their color differs; dusky, brinded, or spotted with white and yellow.

Inhabits all the *European* seas, even to the extreme north; and is found far within the *Arctic* circle, in both *European* and *Asiatic* seas. It is continued to those of *Kamtschatka* *.

These animals may be called the flocks of the *Greenlanders*, and many other of the *Arctic* people. I cannot describe the uses of them to the former more expressively than in the very words of Mr. Crantz, a gentleman very long resident in their chilly country.

“ Seals are more needful to them than Sheep are to us, though they
“ furnish us with food and raiment; or than the cocoa-tree is to the
“ *Indians*, although that presents them not only with meat to eat, and
“ covering for their bodies, but also houses to dwell in, and boats to
“ sail in, so that in case of necessity they could live solely from it. The
“ Seals flesh (together with the Rein-deer, which is already grown
“ pretty scarce) supplies the natives with their most palatable and sub-
“ stantial food. Their fat furnishes them with oil for lamp-light, cham-
“ ber and kitchen fire; and whoever sees their habitations, presently

THEIR GREAT
USE TO THE
GREENLANDERS.

* Steller, in Nov. Com. Petrop. ii. 290.

“ finds, that if they even had a superfluity of wood, it would not do,
 “ they can use nothing but train in them. They also mollify their
 “ dry food, mostly fish, in the train; and finally, they barter it for all
 “ kinds of necessaries with the factor. They can sew better with
 “ fibres of the Seals sinews than with thread or silk. Of the skins of
 “ the entrails they make their windows, curtains for their tents,
 “ shirts, and part of the bladders they use at their harpoons; and
 “ they make train bottles of the maw. Formerly, for want of iron,
 “ they made all manner of instruments and working-tools of their
 “ bones. Neither is the blood wasted, but boiled with other ingre-
 “ dients, and eaten as soup. Of the skin of the Seal they stand in
 “ the greatest need; for, supposing the skins of Rein-deer and birds
 “ would furnish them with competent cloathing for their bodies,
 “ and coverings for their beds; and their flesh, together with fish,
 “ with sufficient food; and provided they could dress their meat
 “ with wood, and also new model their house-keeping, so as to have
 “ light, and keep themselves warm with it too; yet without the
 “ Seals skins they would not be in a capacity of acquiring these
 “ same Rein-deer, fowls, fishes, and wood; because they must cover
 “ over with Seal-skin both their large and small boats, in which they
 “ travel and seek their provision. They must also cut their thongs
 “ or straps out of them, make the bladders for their harpoons, and
 “ cover their tents with them; without which they could not subsist
 “ in summer.

“ Therefore no man can pass for a right *Greenlander* who cannot
 “ catch Seals. This is the ultimate end they aspire at, in all their
 “ device and labor from their childhood up. It is the only art
 “ (and in truth a difficult and dangerous one it is) to which they are
 “ trained from their infancy; by which they maintain themselves,
 “ make themselves agreeable to others, and become beneficial mem-
 “ bers of the community*.

* *Hist. Greenl.* i. 130.

“ The *Greenlanders* have three ways of catching Seals: either singly, with the bladder; or in company, by the *clapper-bunt*; or in the winter on the ice: whereto may be added the shooting them with a gun.

“ The principal and most common way is the taking them with the bladder. When the *Greenlander* gets out equipped according to the 7th Section, and spies a Seal, he tries to surprise it unawares, with the wind and sun in his back, that he may not be heard or seen by it. He tries to conceal himself behind a wave, and makes hastily, but softly, up to it, till he comes within four, five, or six fathom of it; mean while he takes the utmost care that the harpoon, line, and bladder, lie in proper order. Then he takes hold of the oar with his left hand, and the harpoon with his right by the hand-board, and so away he throws it at the Seal, in such a manner that the whole dart flies from the hand-board and leaves that in his hand. If the harpoon hits the mark, and buries itself deeper than the barbs, it will directly disengage itself from the bone-joint, and that from the shaft; and also unwind the string from its lodge on the *kajak*. The moment the Seal is pierced, the *Greenlander* must throw the bladder, tied to the end of the string, into the water, on the same side as the Seal runs and dives; for that he does instantly, like a dart. Then the *Greenlander* goes and takes up the shaft swimming on the water, and lays it in its place. The Seal often drags the bladder with it under water, though 'tis a considerable impediment, on account of its great bigness; but it so wearies itself out with it, that it must come up again in about a quarter of an hour to take breath. The *Greenlander* hastens to the spot where he sees the bladder rise up, and smites the Seal, as soon as it appears, with the great lance described in the 6th Section*. This lance always comes out of its body again; but he throws it at the creature afresh every time it comes up, till 'tis quite spent. Then he runs the

* See the Sections referred to, and tab. v.

“ little lance into it, and kills it outright, but stops up the wound
 “ directly to preserve the blood; and lastly, he blows it up, like a
 “ bladder, betwixt skin and flesh, to put it into a better capacity of
 “ swimming after him; for which purpose he fastens it to the left-
 “ side of his *kajak*, or boat*.

“ In this exercise the *Greenlander* is exposed to the most and
 “ greatest danger of his life; which is probably the reason that they
 “ call this hunt, or fishery, *kamarock*, i. e. the Extinction, viz. of life.
 “ For if the line should entangle itself, as it easily may, in its sud-
 “ den and violent motion; or if it should catch hold of the *kajak*,
 “ or should wind itself round the oar, or the hand, or even the neck,
 “ as it sometimes does in windy weather; or if the Seal should turn
 “ suddenly to the other side of the boat; it cannot be otherwise than
 “ that the *kajak* must be overturned by the string, and drawn down
 “ under water. On such desperate occasions the poor *Greenlander*
 “ stands in need of all the arts described in the former Section, to
 “ disentangle himself from the string, and to raise himself up from
 “ under the water several times successively; for he will continually
 “ be overturning till he has quite disengaged himself from the line.
 “ Nay, when he imagines himself to be out of all danger, and comes
 “ too near the dying Seal, it may still bite him in the face or hand;
 “ and a female Seal that has young, instead of flying the field, will
 “ sometimes fly at the *Greenlander* in the most vehement rage, and
 “ do him a mischief, or bite a hole in his *kajak* that he must sink.

“ In this way, singly, they can kill none but the careless stupid
 “ Seal, called *Attarfoak*†. Several in company must pursue the
 “ cautious *Kassigiak*‡ by the *clapper-bunt*. In the same manner they
 “ also surround and kill the *Attarfoit*§ in great numbers at certain
 “ seasons of the year; for in autumn they retire into the creeks or
 “ inlets in stormy weather, as in the *Nepiset* found in *Ball's* river,
 “ between the main land and the island *Kangek*, which is full two

* See vol. i. 150. tab. viii.

† See N° 77. of this work.

‡ Ditto, N° 72:

§ Ditto, a variety of N° 77.

“ leagues long, but very narrow. There the *Greenlanders* cut off their
“ retreat, and frighten them under water by shouting, clapping, and
“ throwing stones; but, as they must come up again continually to
“ draw breath, then they persecute them again till they are tired,
“ and at last are obliged to stay so long above water, that they sur-
“ round them, and kill them with the fourth kind of dart, described
“ in the 6th Section. During this hunt we have a fine opportunity
“ to see the agility of the *Greenlanders*, or, if I may call it so, their
“ hussar-like manœuvres. When the Seal rises out of the water,
“ they all fly upon it, as if they had wings, with a desperate noise;
“ the poor creature is forced to dive again directly, and the moment
“ he does, they disperse again as fast as they came, and every one
“ gives heed to his post, to see where it will start up again; which
“ is an uncertain thing, and is commonly three quarters of a mile
“ from the former spot. If a Seal has a good broad water, three
“ or four leagues each way, it can keep the sportsmen in play for a
“ couple of hours, before 'tis so spent that they can surround and
“ kill it. If the Seal, in its fright, betakes itself to the land for a
“ retreat, 'tis welcomed with sticks and stones by the women and
“ children, and presently pierced by the men in the rear. This is
“ a very lively and a very profitable diversion for the *Greenlanders*,
“ for many times one man will have eight or ten Seals for his
“ share.

“ The third method of killing Seals upon the ice, is mostly prac-
“ tised in *Disko*, where the bays are frozen over in the winter. There
“ are several ways of proceeding. The Seals themselves make
“ sometimes holes in the ice, where they come and draw breath;
“ near such a hole a *Greenlander* seats himself on a stool, putting
“ his feet on a lower one to keep them from the cold. Now when
“ the Seal comes and puts its nose to the hole, he pierces it in-
“ stantly with his harpoon; then breaks the hole larger, and draws
“ it out and kills it quite. Or a *Greenlander* lays himself upon his
“ belly, on a kind of a sledge, near other holes, where the Seals

“ come out upon the ice to bask themselves in the sun. Near this
 “ great hole they make a little one, and another *Greenlander* puts
 “ a harpoon into it with a very long shaft or pole. He that lies
 “ upon the ice looks into the great hole, till he sees a Seal com-
 “ ing under the harpoon; then he gives the other the signal, who
 “ runs the Seal through with all his might.

“ If the *Greenlander* sees a Seal lying near its hole upon the ice,
 “ he slides along upon his belly towards it, wags his head, and
 “ grunts like a Seal; and the poor Seal, thinking 'tis one of its in-
 “ nocent companions, lets him come near enough to pierce it with
 “ his long dart.

“ When the current wears a great hole in the ice in the spring,
 “ the *Greenlanders* plant themselves all round it, till the Seals come
 “ in droves to the brim to fetch breath, and then they kill them
 “ with their harpoons. Many also are killed on the ice while they
 “ lie sleeping and snoring in the sun*.”

USES IN KAMT-
SCHATKA.

Nature has been so niggardly in providing variety of provision for the *Greenlanders*, that they are necessitated to have recourse to such which is offered to them with a liberal hand. The *Kamtschatkan* nations, which enjoy several animals, as well as a great and abundant choice of fish, are so enamoured with the taste of the fat of Seals, that they can make no feast without making it one of the dishes. Of that both *Russians* and *Kamtschatkans* make their candles. The latter eat the flesh boiled, or else dried in the sun. If they have a great quantity, they preserve it in the following manner:

They dig a pit of a requisite depth, and pave it with stones; then fill it with wood, and set it on fire so as to heat the pit to the warmth of a stove. They then collect all the cinders into a heap. They strew the bottom with the green wood of alder, on which they place separately the flesh and the fat, and put between every layer branches of the same tree; when the pit is filled they cover it with fods, so that the vapour cannot escape. After some hours they take out both

* PP. 153, 4, 5, 6, 7.

fat and flesh, and keep it for winter's provisions, and they may be preserved a whole year without spoiling.

The *Kamtshatkans* have a most singular ceremony. After they take the flesh from the heads of the Seals, they bring a vessel in form of a canoe, and fling into it all the skulls, crowned with certain herbs, and place them on the ground. A certain person enters the habitation with a sack filled with *Tonchitche*, sweet herbs, and a little of the bark of willow. Two of the natives then roll a great stone towards the door, and cover it with pebbles; two others take the sweet herbs and dispose them, tied in little packets. The great stone is to signify the sea-shore, the pebbles the waves, and the packets Seals. They then bring three dishes of a hash, called *Tolkoucha*; of this they make little balls, in the middle of which they stick the packets of herbs: of the willow-bark they make a little canoe, and fill it with *Tolkoucha*; and cover it with the sack. After some time, the two *Kamtshatkans* who had put the mimic Seals into the *Tolkoucha*, take the balls, and a vessel resembling a canoe, and draw it along the sand, as if it was on the sea, to convince the real Seals how agreeable it would be to them to come among the *Kamtshatkans*, who have a sea in their very *jurts*, or dwellings. And this they imagine will induce the Seals to suffer themselves to be taken in great numbers. Various other ceremonies, equally ridiculous, are practised; in one of which they *invoke the winds, which drive the Seals on their shores, to be propitious* *.

SUPERSTITIOUS
CUSTOM.

Besides the uses which are made of the flesh and fat of Seals, the skins of the largest are cut into soles for shoes. The women make their summer boots of the undressed skins, and wear them with the hair outmost. In a country which abounds so greatly in furs, very little more use is made of the skins of Seals in the article of dress than what has been mentioned †. But the *Koriaks*, the *Oloutores*, and *Tchutschis*, form with the skins canoes and vessels of different sizes, some large enough to carry thirty people.

* *Descr. Kamtschatka*, 425.

† The same, 41, 42. 424.

Seals swarm on all the coasts of *Kamtschatka*, and will go up the rivers eighty *versts* in pursuit of fish. They couple on the ice in *April*, and sometimes on the rocks, and even in the sea in calm weather. The *Tungusi* give the milk of these animals to their children instead of phyfic.

CAPTURE.

The Seals in this country are killed by harpooning, by shooting, by watching the holes in the ice and knocking them on the head as they rise; or by placing two or three strong nets across one of the rivers which these animals frequent: fifty or more people assemble in canoes on each side of the nets, while others row up and down, and with great cries frighten the Seals into them. As soon as any are entangled, the people kill them with pikes or clubs, and drag them on shore, and divide them equally among the hunters; sometimes a hundred are taken at a time in this manner.

The navigators observed abundance of Seals about *Bering's* island, but that they decreased in numbers as they advanced towards the straits; for where the Walruses abounded, the Seals grew more and more scarce.

MASSAGETÆ
CLOATHED IN
SEAL-SKINS.

I did not observe any Seal-skin garments among those brought over by the navigators, such as one might have expected among the *Esquimaux* of the high latitudes they visited, and which are so much in use with those of *Hudson's Bay* and *Labrador*. That species of dress doubtless was worn in the earliest times. These people wanted their historians; but we are assured that the *Massagete* * cloathed themselves in the skins of Seals. They, according to *D'anville*, inhabited the country to the east of the *Caspian* sea, and the lake *Aral*; both of which waters abound with Seals.

Seals are now become a great article of commerce. The oil from the vast Whales is no longer equal to the demand for supplying the magnificent profusion of lamps in and round our capital. The chase of these animals is redoubled for that purpose; and the skins, properly tanned, are in considerable use in the manufactory of boots and shoes.

* *Strabo*, lib. xi. 731.

Hist. Zool. N° 382.

Phoca Barbata, *Faun. Græc.* N° 9.—*Urkfuk. Græc.*

Lakhtak, *Hist. Kamtschatka*, 420.—*Lav. Mus.*

73. GREAT.

SEAL. With long pellucid white whiskers with curled points: back arched: black hairs, very deciduous, and thinly dispersed over a thick skin, which in summer is almost naked: teeth like the common Seal: fore feet like the human hand: middle toe the longest; thumb short: length more than twelve feet.

The *Greenlanders* cut out of the skin of this species thongs and lines, a finger thick, for the Seal-fishery. Its flesh is white as veal, and esteemed the most delicate of any: has plenty of lard, but does not yield much oil. The skins of the young are sometimes used to lie on.

It inhabits the high sea about *Greenland*; is a timid species, and usually rests on the floating ice, and very seldom the fixed. Breeds in the earliest spring, or about the month of *March*, and brings forth a single young on the ice, usually among the islands; for at that season it approaches a little nearer to the land. The great old ones swim very slowly.

In the seas of the north of *Scotland* is found a Seal twelve feet long. A gentleman of my acquaintance shot one of that size on the coast of *Switzerland*; but made no particular remarks on it. A young one, seven feet and half long, was shewn in *London* some years ago, which had not arrived at maturity enough even to have scarcely any teeth*: yet the common Seals have them complete before they attain the size of six feet, their utmost growth.

A species larger than an Ox, found in the *Kamtschatkan* seas from 56 to 64 north latitude, called by the natives *Lakhtak*†. They weighed

* *Ph. Transf. Abr.* ix. 74. tab. v. xlvii. 120.

† *Nov. Com. Petrop.* ii. 290.

eight hundred pounds : were eaten by *Bering's* crew ; but their flesh was found to be very loathsome*. The cubs are quite black.

STELLER has left behind him accounts of other Seals found in those wild seas ; but his descriptions are so imperfect as to render it impossible to ascertain the species. He speaks in his MSS. of a middle-sized kind, universally and most elegantly spotted ; another, black with brown spots, and the belly of a yellowish white, and as large as a yearling Ox ; a third species, black, and with a particular formation of the hinder legs ; and a fourth, of a yellowish color, with a great circle on it of the color of cherries †.

74. ROUGH.

Hist. Quad. N° 383.

Phoca Foetida, *Fann. Greenl.* N° 8.—*Neitseck Greenl. Grantz*, i.

SEAL. With a short nose, and short round head : teeth like the common Seal : body almost of an elliptical form, covered with lard almost to the hind feet : hairs closely set together, soft, long, and somewhat erect, with curled wool intermixed : color dusky, streaked with white ; sometimes varies to white, with a dusky dorsal line.

Does not exceed four feet in length.

Never frequents the high seas, but keeps on the fixed ice in the remote bays near the frozen land ; and when old never forsakes its haunts. Couples in *June* ; brings forth in *January*, on the fixed ice, which is its proper element. In that it has a hole for the benefit of fishing ; near that it remains usually solitary, rarely in pairs. Is very incautious, and often sleeps on the surface of the water, yielding itself a prey to the Eagle. Feeds on small fish, shrimps, and the like. The uses of the skin, tendons, and lard, the same with those of other Seals. The flesh is red, and foetid, especially that of the males, which is nauseated by even the *Greenlanders*.

* *Muller's voy.* 60.

† *Dr. Pallas*, and *Descr. Kamtschatka*, 420.

The Seal-hunters in *Newfoundland* have a large kind, which they call the *Square Phipper*, and say weighs five hundred pounds. Its coat is like that of a Water-dog; so that it seems by the length of hair to be allied to this; but the vast difference in size forbids us from pronouncing it to be the same species.

Hist. Quad. N° 381.

Phoca Leporina, Lapechin, M. Acad. Petrop. pars i. 264. tab. viii. ix.—

Hist. Quad. N° 381.

75. LEPORINE.

SEAL. With hair of an uniform dirty white color, with a tinge of yellow, but never spotted; hairs erect, and interwoven; soft as that of a Hare, especially the young: head long: upper lip swelling and thick: whiskers very strong and thick, ranged in fifteen rows, covering the whole front of the lip, so as to make it appear bearded: eyes blue, pupil black: teeth strong; four cutting teeth above, the same below*: fore feet short, and ending abrupt: the membranes of the hind feet even, and not waved: tail short and thick; its length four inches two lines.

Length of this species, from nose to tip of the tail, is six feet six; its greatest circumference five feet two. The cubs are milk white.

This kind inhabits the *White Sea* during summer, and ascends and descends the mouths of rivers † with the tide in quest of prey. It is also found on the coasts of *Iceland*, and within the Polar circle from *Spitzbergen* to *Tchutki Noss*, and from thence southward about *Kamt-schatka*.

Like the others, it is killed for its fat and skin. The last is cut into pieces, and used for straps and reins. The skins of the young, which are remarkably white, are dyed with black, and used to face caps, in imitation of Beavers skins; but the hairs are much stiffer, and do not soon drop off.

* *Mr. Lapechin* compares the number of the teeth to that of another kind (our *Harp Seal*) which, he says, has only four teeth in the lower jaw.

† The same.

Y

Hist.

Size.

76. HOODED.

Hist. Quad. N° 384.*Phoca Leonina, Faun. Greenl.* N° 5.

SEAL. With four cutting teeth above, four below: fore feet like the human; the thumb long: the membranes on the hind feet extend beyond the claws: on the forehead of the male is a thick folded skin, ridged half the way up, which it can inflate and draw down like a cap, to defend its eyes against storms, waves, stones, and sand. The females and young have only the rudiment of this guard. It has two species of hair; the longest white, the shortest thick, black, and woolly, which gives it a beautiful grey color.

It grows to the length of eight feet. The *Greenlanders* call it *Neitsek-soak**, or the Great *Neitsek*. It inhabits only the southern parts of their country, where it inhabits the high seas; but in *April*, *May*, and *June*, comes nearer to the land. Is polygamous; copulates with its body erect. Brings forth in *April* one young upon the ice. Keeps much on the great fragments, where it sleeps in an unguarded way. Bites hard: barks, and whines: grows very fierce on being wounded; but will weep on being surprized by the hunter. Fight among themselves, and inflict deep wounds. Feed on all kinds of greater fish. The skins of the young form the most elegant dresses for the women. The men cover their great boats with those of the old; they also cover their houses with them, and when they grow old convert them into sacks. They use the teeth to head hunting-spears. Of the gullet and intestines they make the sea-dresses. The stomach is made into a fishing-buoy.

It is also found in *Newfoundland*. Our Seal-hunters name it the *Hooded Seal*, and pretend they cannot kill it till they remove that integument. The *Germans* call it *Klap-Mutz*, from its covering its face as if with a cap.

The most dreaded enemy which this species has in *Greenland*, is the *Physeter Microps*; on the very sight of which it takes to the ice,

* *Grantz*, i. 25,

and

and quietly expects its fate *. The *Greenlanders* therefore detest this species of Whale, not only on account of the havoc it makes among the Seals, but because it frightens them away from the bays †.

It is entirely different from the *LEONINE SEAL*, or from that of the South-sea, called the *BOTTLE-NOSE*.

Hist. Quad. N° 385.

Phoca Oceanica, *Krylatca Russis*, *Lepechin*, *AB. Acad. Petrop.* pars i. 259. tab. vi. vii.

Phoca Greenlandica, *Faun. Groenl.* N° 7.—*Atak Groenl.* *Atarsoak*, *Crantz*, i. 124.

77. HARP.

SEAL. With a round head: high forehead: nose short: large black eyes: whiskers disposed in ten rows of hairs: four cutting teeth in the upper jaw, the two middlemost the longest; four also in the lower, less sharp than the others: two canine teeth in each jaw: six grinders in each jaw, each three-pointed: hairs short: skin thick and strong.

Head, nose, and chin, of a deep chesnut color, nearly black; rest of the body of a dirty white, or light grey: on the top of the shoulders is a large mark of the same color; with the head bifurcated, each fork extending downwards along the sides half way the length of the body. This mark is always constant; but there are besides a few irregular spots incidental to the old ones.

The female has only two, retractile, teats; and brings only one young at a time. The cub, the first year, is of a bright ash-color, whitish beneath, and marked in all parts with multitudes of small black spots, at which period they are called by the *Russians* White Seals. In the next year they begin to be spotted; from that period the females continue unchanged in color. The males at full age, which Mr. *Crantz* says is their fifth year, attain their distinguishing spot, and are called by the *Greenlanders* *Atarsoak* †; by the *Russians*, *Krylatka*, or winged.

* *Faun. Groenl.* p. 9.

† The same, p. 45.

‡ *Crantz*, i. 124.

This inhabits the same countries with the *Rough* and *Leporine Seal*; but loves the coldest parts of the coast. Continues on the loose ice of *Nova Zembla* the whole year; and is seen only in the winter in the *White Sea*, on the floating ice carried from the northern seas. It brings forth its young about the end of *April*, and after suckling it a sufficient time departs with the first ice into the *Frozen Ocean*. The young remains behind for some time, then follows its parent with the ice which is loosed from the shore*.

It abounds in *Greenland* and about *Spitzbergen*, especially in the bottoms of the deep bays. Migrates in *Greenland* twice in the year: in *March*, and returns in *May*; in *June*, and returns in *September*. Couples in *July*, and brings forth towards the end of *March* or beginning of *April*: has one young, rarely two, which it suckles on fragments of ice far from land. It never ascends the fixed ice; but lives and sleeps on the floating islands in great herds. Swims in great numbers, having one for a leader, which seems to watch for the security of the whole. Eats its prey with its head above water. Swims in various ways; on its belly, back, and side, and often whirls about as if in frolick. Frequently sleeps on the surface of the water. Is very incautious. Has great dread of the *Physeter Microps*, which forces it towards the shore. It is often surrounded by troops of hunters, who compel it even to land, where it is easily killed.

It is found also about *Kamtschatka*, being the third species mentioned by *Steller*.

SIZE.

It grows to the length of nine feet. The measurements of one described by Mr. *Lepechin* are as follow—The length, from the nose to the tip of the tail, was six feet: the length of the tail five inches three lines: the girth of the thickest part of the body four feet eight.

USES.

The skin is used to cover trunks; that of the young, taken in the isle of *Salovki*, on the west side of the *White Sea*, is made into boots, and is excellent for keeping out water. The *Greenlanders*, in dressing the skins, curry off the hair, and leave some fat on the inside to ren-

* *Ad. Acad. Petrop. pars.* 263.

der them thicker. With these they cover their boats, and with the undressed skins their tents; and, when they can get no other, make use of them for cloathing.

The oil extracted from the blubber of this Seal is far the most valuable, being sweet, and so free from greaves as to yield a greater quantity than any other species. The flesh is black.

The *Newfoundland* Seal-hunters call it the *Harp*, or *Heart* Seal, and name the marks on the sides the saddle. They speak too of a brown sort, which they call *Bedlemer*, and believe to be the young of the former.

Hist. Quad. N° 380. fig. at p. 513.

78. RUBBON.

SEAL. With very short bristly hair, of an uniform glossy color, almost black: the whole back and sides comprehended within a narrow regular stripe of pale yellow.

It is to Dr. *Pallas* I owe the knowlege of this species. He received only part of the skin, which seemed to have been the back and sides. The length was four feet, the breadth two feet three; so it must have belonged to a large species. It was taken off the *Karik* islands.

Hist. Quad. N° 387.

Not Russis Gentilibus ad Sinum *Penbincum*, *Tarlatfchega*, *Nov. Com. Petrop.* ii. 331. tab. xv.

Sea Wolf *, *Pernety*, *Engl. Tr.* 187. tab. xvi.—*Ulloa's voy.* i. 226.

Chat Marin, *Hist. Kamtschatka*, 433.

79. URSINE.

SEAL. With a high forehead: nose projecting like that of a dog: black irides: smaragdine pupil: whiskers composed of triangular hairs, thinly scattered: nostrils oval, divided by a *septum*: lips thick; their inside red, and ferrated.

* The *French* generic name for the Seal is *Loup Marin*, and the *Spanish*, *Lobo Marino*.

In.

TEETH.

In the upper jaw four bifurcated cutting teeth; on each side of these a very sharp canine tooth bending inwards; beyond these another, which, in battle, the animal strikes with, as Boars do with their tusks. Instead of grinders, in each upper jaw are six sharp teeth resembling canine, and very slightly exerted. In the lower jaw four cutting teeth, and canine like those in the upper; and on each side ten others in the place of grinders. When the mouth is closed all the teeth lock into each other.

TONGUE, EARS.

The tongue rough and bifid: the ears short, small, and sharp-pointed, hairy on the outside, smooth and polished within.

FORE LEGS.

Fore legs two feet long, not immersed in the body, like those of other Seals, but resemble those of common quadrupeds. The feet are furnished with five toes, with the rudiments of nails; but these are so entirely covered with a naked skin, as to be as much concealed as a hand is with a mitten. The animal stands on these legs with the utmost firmness; yet the feet seem but a shapeless mass.

HIND LEGS.

The hind legs are twenty-two inches long, and situated like those of Seals; but are capable of being brought forward, so that the animal makes use of them to scratch its head: on each are five toes, connected by a large web; and are a foot broad. The tail is only two inches long.

TAIL.**BODY.**

The body is of a conoid shape. The length of a large one is about eight feet; the circumference near the shoulders is five feet, near the tail twenty inches. The weight eight hundred pounds.

FEMALE.

The female is far inferior in size to the male: it has two teats, placed far behind.

COLOR.

The whole animal is covered with long and rough hair, of a blackish color; that of the old is tipped with grey; and on the neck of the males is a little longer and erect: beneath the hair is a soft fur of a bay color. The females are cinereous. The skin is thick and strong.

PLACE.

These animals are found in amazing multitudes on the islands between

tween *Kamtschatka* and *America* *; but are scarcely known to land on the *Asiatic* shore: nor are they ever taken except in the three *Kurilian* islands, and from thence in the *Bobrowaie More*, or *Beaver Sea*, as far as the *Kronoski* headland, off the river *Kamtschatka*, which comprehends only from 50 to 56 north latitude. It is observable that they never double the southern cape of the peninsula, or are found on the western side in the *Penscbinska* sea: but their great resort has been observed to be to *Bering's* islands. They are as regularly migratory as birds of passage. They first appear off the three *Kurili* islands and *Kamtschatka* in the earliest spring. They arrive excessively fat; and there is not one female which does not come pregnant. Such which are then taken are opened, the young taken out and skinned. They are found in *Bering's* island only on the western shore, being the part opposite to *Asia*, where they first appear on their migration from the south. They continue on shore three months, during which time the females bring forth. Excepting their employ of suckling their young, they pass their time in total inactivity. The males sink into the most profound indolence, and deep sleep; nor are they ever roused, except by some great provocation, arising from an invasion of their place, or a jealousy of their females. During the whole time they neither eat nor drink. *Steller* dissected numbers, without finding the least appearance of food in their stomachs.

MIGRATORY.

LONG SLEEP AND
FASTING.

They live in families. Every male is surrounded by a seraglio of from eight to fifty mistresses; these he guards with the jealousy of an eastern monarch. Each family keeps separate from the others, notwithstanding they lie by thousands on the shore. Every family, with the unmarried and the young, amount to about a hundred and twenty. They also swim in tribes when they take to the sea.

LIVE IN FAMIL-
LIES.

* They say that the *Sea-Cat*, or *Siwutchka*, is found in those islands; but *Siwutchka* is the name given by the *Kamtschatkans* and *Kurilians* to the *Leonine Seal* only. *Northern Archipelago*, &c. by *Von Stahlen*. Printed for *Heydinger*, 1774, p. 34.

The

AFFECTION TO-
WARDS THEIR
YOUNG.

The males shew great affection towards their young, and equal tyranny towards the females. The former are fierce in the protection of their offspring; and should any one attempt to take their cub, will stand on the defensive, while the female carries it away in her mouth. Should she happen to drop it, the male instantly quits its enemy, falls on her, and beats her against the stones till he leaves her for dead. As soon as she recovers, she crawls to his feet in the most suppliant manner, and washes them with her tears; he at the same time brutally insults her misery, stalking about in the most insolent manner. But if the young is entirely carried off, he melts into the greatest affliction, likewise sheds tears, and shews every mark of deep sorrow. It is probable that as the female brings only one, or at most two cubs, he feels his misfortune the more sensibly.

CONFLICTS.

Those animals which are destitute of females, through age or impotence, or are deserted by them, withdraw themselves from society, and grow excessively splanetic, peevish, and quarrelsome; are very furious, and so attached to their antient stations, as to prefer death to the loss of them. They are enormously fat, and emit a most nauseous and rank smell. If they perceive another animal approach its seat, they are instantly roused from their indolence, snap at the encroacher, and give battle. During the fight they insensibly intrude on the station of their neighbor. This creates new offence; so that at length the civil discord spreads through the whole shore, attended with hideous growls, their note of war. They are very tenacious of life, and will live a fortnight after receiving such wounds as would soon destroy any other animal.

CAUSES OF THEM.

The particular causes of disputes among these irascible beasts are the following:—The first and greatest is, when an attempt is made to seduce any of their mistresses, or a young female of the family: a battle is the immediate consequence of the insult. The unhappy vanquished instantly loses his whole seraglio, who desert him for the victorious hero.

The

The invasion of the station of another, gives rise to fresh conflicts; and the third cause is the interfering in the disputes of others. The battles they wage are very tremendous; the wounds they inflict very deep, like the cut of a sabre. At the conclusion of an engagement they fling themselves into the sea to wash off the blood.

Besides their notes of war, they have several others. When they lie on shore, and are diverting themselves, they low like a Cow. After victory they chirp like a Cricket. On a defeat, or after receiving a wound, mew like a Cat.

NOTES.

Common Seals, and Sea Otters, stand in great awe of these animals, and shun their haunts. They again are in equal awe of the Leonine Seals, and do not care to begin a quarrel in their sight, dreading the intervention of such formidable arbitrators; who likewise possess the first place on the shore.

DREAD THE LEONINE SEAL.

The great and old animals are in no fear of mankind, unless they are suddenly surprized by a loud shout, when they will hurry by thousands into the sea, swim about, and stare at the novelty of their disturbers.

FEAR NOT MANKIND.

When they come out of the water, they shake themselves, and smooth their hair with their hind feet: apply their lips to those of the females, as if they meant to kiss them: lie down and bask in the sun with their hind legs up, which they wag as a Dog does its tail. Sometimes they lie on their back, sometimes roll themselves up into a ball, and fall asleep. Their sleep is never so sound but they are awake by the least alarm; for their sense of hearing, and also that of smelling, is most exquisite.

They copulate, *more humano*, in July, and bring forth in the June following; so they go with young eleven months. The cubs are as sportive as puppies; have mock fights, and tumble one another on the ground. The male parent looks on with a sort of complacency, parts them, licks and kisses them, and seems to take a greater affection to the victor than to the others.

COPULATION.

GESTATION.

Z

They

SWIFT SWIMMERS.

They swim with amazing swiftness and strength, even at the rate of seven or eight miles an hour, and often on their back. They dive well, and continue a great while under water. If wounded in that element, they will seize on the boat, carry it with them with great impetuosity, and often will sink it.

When they wish to ascend the rocks, they fix their fore feet on them, arch their backs, and then draw themselves up.

CAPTURE.

The *Kamtshatkans* take them by harpooning, for they never land on their shore. To the harpoon is fastened a long line, by which they draw the animal to the boat after it is spent with fatigue; but in the chase, the hunters are very fearful of too near an approach, lest the animal should fasten on and sink their vessel.

USES.

The uses of them are not great. The flesh of the old males is rank and nauseous; that of the females is said to resemble lamb; of the young ones roasted, a sucking pig. The skins of the young, cut out of the bellies of the dams, are esteemed for cloathing, and are sold for about three shillings and four pence each; those of the old for only four shillings.

RE-MIGRATION.

Their re-migration is in the month of *September*, when they depart excessively lean, and take their young with them. On their return, they again pass near the same parts of *Kamtshatka* which they did in the spring. Their winter retreats are quite unknown; it is probable that they are the islands between the *Kurili* and *Japan*, of which we have some brief accounts, under the name of *Compagnie Land*, *States Land*, and *Jeso Gafima*, which were discovered by *Martin Uriel* in 1642*. It is certain that by his account the natives employ themselves in the capture of Seals†. Sailors do not give themselves the trouble of observing the nice distinction of specific marks, we are therefore at liberty to conjecture those which he saw

* He sailed from the east side of *Japan* in the ship *Gastricon*, visited the isle of *Jeso*, and discovered the islands which he called *States Land* and *Company Land*, the last not very remote from the most southern *Kurili* island. *Recueil de voy. au Nord*, iv. 1.

† The same, 12.

to be our animals, especially as we can fix on no more convenient place for their winter quarters. They arrive along the shores of the Kurili islands, and part of those of Kamtschatka, from the south. They land and inhabit only the western side of Bering's isle, which faces Kamtschatka; and when they return in September, their route is due south, pointing towards the discoveries of Uriel. Had they migrated from the south-east as well as the south-west, every isle, and every side of every isle, would have been filled with them; nor should we have found (as we do) such a constant and local residence.

Before I quit this article I must observe, that there seems to be in the seas of *Jeso Gafimo* another species of Seal, perhaps our little Seal, N° 386. *Hist. Quad.* The account indeed is but obscure, which I must give as related by *Charlevoix* in his compilations respecting that island. "The natives," says he, "make use of an oil to drink, drawn from a sort of fish, a small hairy creature with four feet." If this account is true, it serves to point out the farthest known residence of this genus, on this side of the northern hemisphere.

Finally, the *Ursine* Seals are found in the southern hemisphere, even from under the line, in the isle of *Gallipagos* †, to *New Georgia* ‡, in south latitude 54. 15. and west longitude 37. 15. In the intermediate parts, they are met with in *New Zeland* ||, in the isle of *Juan Fernandez*, and its neighbor *Massa Fuera*, and probably along the coasts of *Cbili* to *Terra del Fuego*, and *Staten Land*. In *Juan Fernandez*, *Staten Land*, and new *Georgia* ¶, they swarm; as they do at the northern extremity of this vast ocean. Those of the southern hemisphere have also their seasons of migration. *Alexander Selkirk*, who passed three lonely years on the isle of *Juan Fernandez*, remarks

URSINE SEAL IN
THE SOUTHERN
HEMISPHERE.

† *Woodes Rogers's voy.* 265. He says that they are neither so numerous there, nor is their fur so fine as those on *Juan Fernandez*, which is said to be extremely soft and delicate.

‡ *Cook's voy.* ii. 213. || *Cook, i.* 72. 86. *Forster's Obs.* 189. ¶ *Anson's voy.* 122. *Cook, ii.* 194. 213.

that they come ashore in June, and stay till September*. Captain Cook found them again, in their place of remigration, in equal abundance, on Staten Land and New Georgia, in the months of December and January†; and Don Pernety‡ found them on the Falkland islands, in the month of February.

According to the Greenlanders, this species inhabits the southern parts of their country. They call it *Auvekajak*. That it is very fierce, and tears to pieces whatsoever it meets; that it lives on land as well as in water, swims most impetuously, and is dreaded by the hunters §.

80. LEONINE.

Hist. Quad. N° 389.

Bestia Marina, Kurillis, Kamtschadalis et Russis, Kurillico nomine Sawuscha dicta.

Nov. Com. Petrop. ii. 360.

Lion Marin, Hist. Kamtschatka, 428.

SEAL. With a large head: nose turning up like that of a pug Dog: eyes large; pupil smaragdine: the greater angle of each, as if stained with cinnabar color. In the upper jaw four small cutting teeth; the exterior on each side remote, and at some distance from these are two large canine teeth: in the lower jaw four small cutting teeth, and the canine: the grinders small and obtuse; four on each side above, and five below: ears conic and erect: feet exactly like those of the *Ursine Seal*.

Along the neck of the male is a mane of stiff curled hair; and the whole neck is covered with long waved hairs, such as distinguish a Lion; the rest of the animal clothed with short reddish hairs: those of the female are of the color of ochre; the young of a much deeper. The old animals grow grey with age.

* *Selkirk's account in W. Rogers's voy.* 136.
voyages Engl. 7^e, 187.

† ii. 194. 213.

‡ *Hist.*

§ *Faun. Greenl.* p. 64.

The weight of a large male beast is sixteen hundred pounds. Length of the males is sometimes fourteen, or even eighteen feet *. The females are very disproportionably lesser, not exceeding eight feet.

Inhabits the eastern coasts of *Kamtschatka*, from cape *Kronozki* as low as cape *Lapatka* and the *Kurili* islands, and even as far as *Matsmai*, which probably is the same with *Jeso Gafima*. Near *Matsmai* Captain *Spanberg* observed a certain island of a most picturesque form, bordered with rocks resembling buildings, and swarming with these animals, to which he gave the name of the *Palace of the Sea Lions* †. Like the *Ursine* Seals, they are not found on the western side of the peninsula. They abound, in the months of *June*, *July*, *August*, and *September*, on *Bering's* island, which they inhabit for the sake of quiet parturition and suckling their young. *Steller* also saw them in abundance in *July* on the coasts of *America*.

They do not migrate like the former; but only change the place of residence, having winter and summer stations ‡. They live chiefly on rocky shores, or lofty rocks in the sea, which seem to have been torn away from the land by the violence of some earthquake ||. These they climb, and by their dreadful roaring are of use in foggy weather to warn navigators to avoid destruction.

They copulate in the months of *August* and *September*; go ten months, and bring only one at a time. The parents shew them little affection, often tread them to death through carelessness, and will suffer them to be killed before them without concern or resentment. The cubs are not sportive, like other young animals, but are almost always asleep. Both male and female take them to sea to learn them to swim; when wearied, they will climb on the back of their dam; but the male often pushes them off, to habituate them to the

* *Narborough*, 31. *Penrose Falkland Isles*, 28. *Pernetti*, voy. *Malouines*, 240. By his confounding the names of this and the Bottle-nose Seal, N° 288. *Hist. Quad.* he led me into a mistake about the length of this.

† *Descr. Kamtschatka*, 433. ‡ *Nov. Com. Petrop.* ii. 365. || *Muller's voy.* 66.

exercise. The *Russians* were wont to fling the cubs into the water, and they always swam back to shore.

The males treat the females with great respect, and are very fond of their caresses. They are polygamous, but content themselves with fewer wives than the former, having only from two to four apiece.

FEAR MANKIND :

The males have a terrible aspect, yet they take to flight on the first appearance of a human creature; and if they are disturbed from their sleep, seem seized with great horrors, sigh deeply in their attempts to go away, fall into vast confusion, tumble down, and tremble in such a manner as scarcely to be able to use their limbs. But if they are reduced to a strait, so as not possibly to effect an escape, they grow desperate, turn on their enemy with great fury and noise, and even put the most valiant to flight.

**UNLESS HABITU-
ATED.**

By use they lose their fear of men. *Steller* once lived for six days in a hovel amidst their chief quarters, and found them soon reconciled to the sight of him. They would observe what he was doing with great calmness, lie down opposite to him, and suffer him to seize on their cubs. He had an opportunity of seeing their conflicts about their females; and once saw a duel between two males, which lasted three days, and one of them received above a hundred wounds. The *Ursine* Seals never interfered, but got out of the way as fast as possible. They even suffered the cubs of the former to sport with them without offering them the least injury.

NOTES.

This species has many of the same actions with the former, in swimming, walking, lying, and scratching itself. The old bellow like Bulls; the young bleat like Sheep. *Steller* says, that from their notes he seemed like a rustic amidst his herds. The males had a strong smell, but were not near so fetid as the *Ursine* sort.

FOOD.

Their food is fish, the lesser Seals, Sea Otters, and other marine animals. During the months of *June* and *July* the old males almost entirely abstain from eating, indulge in indolence and sleep, and become excessively emaciated.

The voyagers made use of them to subsist on, and thought the flesh of the young very savoury. The feet turned into jelly on being dressed, and in their situation were esteemed great delicacies. The fat was not oily; that of the young resembled the suet of mutton, and was as delicious as marrow. The skin was useful for straps, shoes, and boots.

Uses.

The *Kamtschatkans* esteem the chase of these animals a generous diversion, and hold the man in highest honor, in proportion to the number he has killed. Even these heroes are very cautious when they attack one of the animals on shore: they watch an opportunity when they find it asleep, approach it against the wind, strike their harpoon, fastened to a long thong, into its breast, while their comrades fasten one end to a stake, and that done, he takes to his heels with the utmost precipitation. They effect his destruction at a distance, by shooting him with arrows, or flinging their lances into him; and when exhausted, they venture to come near enough to knock him on the head with clubs.

CHASE.

When they discover one on the lonely rocks in the sea, they shoot it with poisoned arrows: unable to endure the pain of the wound, heightened by the salt-water, which it plunges into on the first receiving it, it swims on shore in the greatest agony. If they find a good opportunity, they transfix it with their weapons; if not, they leave it to die of the poison, which it infallibly does in twenty-four hours, and in the most dreadful agony*.

They esteem it a great disgrace to leave any of their game behind: and this point of honor they often observe, even to their own destruction; for it happens that when they go in search of these animals to the isle of *Alait*, which lies some miles south-west of *Lapatka* promontory, they observe this principle so religiously, as to overload their boats so much, as to send them and their booty to the bottom; for they scorn to save themselves, at the expence of throwing overboard any part†.

* *Descr. Kamtschatka*, 377.

† *Nov. Com. Petrop.* ii. 302.

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This species has been discovered very low in the southern hemisphere; but, I believe, not on the western side. Sir John Narborough* met with them on an island off Port Desire, in lat. 47. 48. Sir Richard Hawkins† found them on Pinguin isle, within the second Narrow of the straits of Magellan. They abound in the Falkland Islands‡; and were again discovered by Captain Cook on the New Year's Islands, off the west coast of Staten Land§. In those southern latitudes they bring forth their young in the middle of our winter, the season in which our late circumnavigators § visited those distant parts.

* Voy. 31.

† Voy. 75.

‡ Peron's voy. 182. tab. xvi.

§ Cook, ii. 194. 203. The months in which these animals were observed by the navigators, were January and February; but by Sir J. Narborough, in the straits of Magellan, about the 4th of March, O. S.

§ Forster's voy. ii. 514.

HIST.

WHALE-TAILED MANATI.

177

HIST. QUAD. GENUS XLIII.

MANATI.

Hist. Quad. N° 390.

Morskaja Korowa, Russorum. Nov. Com. Petrop. ii. 294.

Vaches Marines, Descr. Kamtschatka, 446.

81. WHALE-TAILED.

MANATI. With a small oblong squarish head, hanging down : mouth small : lips doubled, forming an outward and inward lip : about the junction of the jaws a set of white tubular bristles, as thick as a pigeon's quill, which serve as strainers to permit the running out of the water, and to retain the food : the lips covered with strong bristles, which serve instead of teeth to crop the strong roots of marine plants : no teeth, but in each jaw a flat white oblong bone with an undulated surface, which being placed above and below, performs the use of grinders to comminute the food.

Nostrils placed at the end of the nose, and lined with bristles : no ears, only in their place a small orifice.

Eyes very small, not larger than those of a Sheep, hardly visible through the little round holes in the skin ; the irides black ; the pupil livid : tongue pointed and small.

The whole animal is of great deformity : the neck thick, and its union with the head scarcely discernible : the two feet, or rather fins, are fixed near the shoulders ; are only twenty-six inches long ; are destitute of toes, or nails, but terminate in a sort of hoof, concave beneath, lined with bristles, and fitted for digging in sand.

The outward skin is black, rugged, and knotty, like the bark of an aged oak : without any hair ; an inch thick, and so hard as scarcely to be cut with an ax ; and when cut, appears in the inside like ebony. From the nape to the tail it is marked with circular wrinkles rising into knots, and sharp points on the side. This skin covers the whole

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body like a crust, and is of singular use to the animal during winter, in protecting it against the ice, under which it often feeds, or against the sharp-pointed rocks, against which it is often dashed by the wintry storms. It is also an equal guard against the summer heats; for this animal does not, like most other marine creatures, feed at the bottom, but with part of the body exposed, as well to the rays of the sun as to the piercing cold of the frost. In fact, this integument is so essential to its preservation, that *Steller* has observed several dead on the shore, which he believes were killed by the accidental privation of it. The color of this skin, when wet, is dusky, when dried, quite black.

TAIL.

The tail is horizontally flat; black, and ending in a stiff fin, composed of laminae like whale-bone, terminating with fibres near nine inches long. It is slightly forked; but both ends are of equal lengths, like the tail of a Whale.

It has two teats placed exactly on the breast. The milk is thick and sweet, not unlike that of a Ewe. These animals copulate *more humano*, and in the season of courtship sport long in the sea; the female feigning to shun the embraces of the male, who pursues her through all the mazes of her flight.

The body, from the shoulders to the navel, is very thick; from thence to the tail grows gradually more slender. The belly is very large; and, by reason of the quantity of entrails, very tumid.

SIZE.

These animals grow to the length of twenty-eight feet. The measurements of one somewhat lesser, as given by Mr. *Steller*, are as follow:

The length, from the nose to the end of the tail, twenty-four feet and a half: from the nose to the shoulders, or setting-on of the fins, four feet four. The circumference of the head, above the nostrils, two feet seven; above the ears, four feet: at the nape of the neck, near seven feet: at the shoulders, twelve: about the belly, above twenty: near the tail, only four feet eight: the extent of the tail, from point to point, six feet and a half.

WHALE-TAILED MANATI.

479

The weight of a large one is eight thousand pounds.

Inhabits the shores of *Bering's* and the other islands which intervene between the two continents. They never appear off *Kamschatka*, unless blown ashore by tempests, as they sometimes are about the bay of *Awatscha*. The natives style them *Kapustnik*, or cabbage-eaters, from their food. This genus has not been discovered in any other part of the northern hemisphere. That which inhabits the eastern side of *South America*, and some part of *Africa*, is of a different species. For the latter I can testify, from having seen one from *Senegal*. Its body was quite smooth; its tail swelled out in the middle, and sloped towards the end, which was rounded *. To support my other opinion, I can call in the faithful *Dampier*; who describes the body as perfectly smooth †: had it that striking integument which the species in question has, it could not have escaped his notice. Let me also add, that the size of those which that able seaman observed, did not exceed ten or twelve feet; nor the weight of the largest reach that of twelve hundred pounds ‡.

I suspect that this species extends to *Mindanao*, for one kind is certainly found there ||. It is met with much farther south; for I discover, in the collection of Sir JOSEPH BANKS, a sketch of one taken near *Diego Rodriguez*, vulgarly called *Diego Rais*, an isle to the east of *Mauritius*; and it may possibly have found its way through some northern inlet to the seas of *Greenland*; for Mr. *Fabricius* once discovered in that country the head of one, half consumed, with teeth exactly agreeing with those of this species §.

These animals frequent the shallow and sandy parts of the shores, and near the mouths of the small rivers of the island of *Bering*, seemingly pleased with the sweet water. They go in herds: the old keep behind and drive their young before them: and some keep on their sides, by way of protection. On the rising of the tide they

WEIGHT.

PLACE.

MANNERS.

* A figure of this species is given in *De Buffon*, xii. tab. lvii. and in *Schreber*, ii. tab. lxxx.

† *Voy. i.* 33.

‡ *Ibid.*

|| *Dampier*, i. 321.

§ *Faun. Greenl.* p. 6.

WHALE-TAILED MANATI.

approach the shores, and are so tame as to suffer themselves to be stroked: if they are roughly treated, they move towards the sea; but soon forget the injury, and return.

They live in families near one another: each consists of a male and female, a half-grown young, and a new-born one. The families often unite, so as to form vast droves. They are monogamous. They bring forth a single young, but have no particular time of parturition; but chiefly, as *Steller* imagines, about *autumn*.

They are most innocent and harmless in their manners, and most strongly attached to one another. When one is hooked, the whole herd will attempt its rescue: some will strive to upset the boat, by going beneath it; others will fling themselves on the rope of the hook and press it down, in order to break it; and others again will make the utmost efforts to force the instrument out of its wounded companion.

Their conjugal affection is most exemplary: a male, after using all its endeavours to release its mate which had been struck, pursued it to the very edge of the water; no blows could force it away. As long as the deceased female continued in the water, he persisted in his attendance; and even for three days after she was drawn on shore, and even cut up and carried away, was observed to remain, as if in expectation of her return.

They are most voracious creatures, and feed with their head under water, quite inattentive of the boats, or any thing that passes about them; moving and swimming gently after one another, with much of their back above water. A species of louse harbours in the roughness of their coats, which the Gulls pick out, sitting on them as Crows do on Hogs and Sheep. Every now and then they lift their nose out of the water to take breath, and make a noise like the snorting of Horses. When the tide retires, they swim away along with it; but sometimes the young are left ashore till the return of the water: otherwise they never quit that element: so that in nature, as well as form, they approach the cetaceous animals, and are the link between Seals and them.

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WHALE-TAILED MANATI.

181

They were taken on *Bering's* isle by a great hook fastened to a long rope. Four or five people took it with them in a boat, and rowed amidst a herd. The strongest man took the instrument, struck it into the nearest animal; which done, thirty people on shore seized the rope, and with great difficulty drew it on shore. The poor creature makes the strongest resistance, assisted by its faithful companions. It will cling with its feet to the rocks till it leaves the skin behind; and often great fragments of the crusty integument fly off before it can be landed. It is an animal full of blood; so that it spouts in amazing quantities from the orifice of the wound.

They have no voice; only, when wounded, emit a deep sigh.

They have the senses of sight and hearing very imperfect; or at least neglect the use of them.

They are not migratory; for they were seen about *Bering's* island the whole of the sad ten months which Mr. *Steller* passed there after his shipwreck.

In the summer they were very fat; in the winter so lean that the ribs might be counted.

The skin is used, by the inhabitants about the promontory *Tchuktchi*, to cover their boats. The fat, which covers the whole body like a thick blubber, was thought to be as good and sweet as *May-butter*: that of the young, like hogs-lard. The flesh of the old, when well boiled, resembled beef: that of the young, veal. The flesh will not refuse salt. The crew preserved several casks full, which was found of excellent service in their escape from their horrible confinement*.

To this article must be added an imperfect description of a marine animal seen by Mr. *Steller* on the coast of *America*, which he calls a *Sea Ape*. The head appeared like that of a Dog, with sharp and upright ears, large eyes, and with both lips bearded: the body round and conoid; the thickest part near the head: the tail forked;

CAPTURE.

USES.

THE FAT.

LEAN.

SEA APE.

* *Muller's voy.* 62. *Nov. Com. Petrop.* ii. 329.

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the upper lobe the longest: the body covered with thick hair, grey on the back, reddish on the belly. It seemed destitute of feet.

It was extremely wanton, and played a multitude of monkey-tricks. It sometimes swam on one side, sometimes on the other side of the ship, and gazed at it with great admiration. It made so near an approach to the vessel, as almost to be touched with a pole; but if any body moved, it instantly retired. It would often stand erect for a considerable space, with one-third of its body above water; then dart beneath the ship, and appear on the other side; and repeat the same thirty times together. It would frequently arise with a sea-plant, not unlike the Bottle-gourd, toss it up, and catch it in its mouth, playing with it numberless fantastic tricks*.

On animals of this species the fable of the *Sirens* might very well be founded.

SEA
BELUGA.

I shall conclude this article with a recantation of what I say in the 357th page of my Synopsis, relating to the *Beluga*; which I now find was collected, by the author I cite, from the reports of *Cossacks*, and ignorant fishermen. The animal proves at last to be one of the cetaceous tribe, of the genus of *Dolphin*, and of a species called by the *Germans Wit-Fisch*, and by the *Russians Beluga*†; both signifying White fish: but to this the last add *Morskaja*, or *of the sea*, by way of distinguishing it from a species of Sturgeon so named. It is common in all the *Arctic* seas; and forms an article of commerce, being taken on account of its blubber. They are numerous in the gulph of *St. Lawrence*; and go with the tide as high as *Quebec*. There are fisheries for them, and the common *Porpesse*, in that river. A considerable quantity of oil is extracted; and of their skins is made a sort of Morocco leather, thin, yet strong enough to resist a musquet-ball‡. They are frequent in the *Dwina* and the *Oby*; and go in small families from five to ten, and advance pretty far up the rivers in pursuit of fish. They are usually caught in nets; but are some-

* *Hist. Kamtschatka*, 136.

† *Pallas, Itin.* iii. 84. tab. iv. *Grantz Greenl.* i. 114. *Purchas's Pilgrims*, iii. 549.

‡ *Charlevoix*, v. 217.

times

times harpooned. They bring only one young at a time, which is dusky; but grow white as they advance in age; the change first commencing on the belly. They are apt to follow boats, as if they were tamed; and appear extremely beautiful, by reason of their resplendent whiteness.

It being a species very little known, and never well engraven, I shall give a brief description, and adjoin an engraving taken from an excellent drawing communicated to me by Dr. Pallas.

The head is short: nose blunt: spiracle small, of the form of a crescent: eyes very minute: mouth small: in each side of each jaw are nine teeth, short, and rather blunt; those of the upper jaw are bent, and hollowed, fitted to receive the teeth of the lower jaw when the mouth is closed: pectoral fins nearly of an oval form: beneath the skin may be felt the bones of five fingers, which terminate at the edge of the fin in five very sensible projections. This brings it into the next of rank in the order of beings with the *Manati*. The tail is divided into two lobes, which lie horizontally, but do not fork, except a little at their base. The body is oblong, and rather slender, tapering from the back (which is a little elevated) to the tail. It is quite destitute of the dorsal fin.

Its length is from twelve to eighteen feet. It makes great use of its tail in swimming; for it bends that part under it, as a Lobster does its tail, and works it with such force as to dart along with the rapidity of an arrow.

A full account of the fish of the Whale kind, seen by the Reverend Dr. Borlase † between the *Land's End* and the *Scilly* islands, is a desideratum in the *British* Natural History. He describes them as being from twelve to fifteen feet long; some were milk-white, others brown, others spotted. They are called *Thornbacks*, from a sharp and broad fin on the back. This destroys my suspicion of their being of the above species.

* *Daum. Greenl.* 51.

† *Obs. Scilly Islands*, 3.

IV. WINGED.

BAT.

HIST. QUAD. GENUS XLIV.

82. NEW YORK.

Hist. Quad. N° 403.—LEV. MUS.

BAT. With the head like that of a Mouse: top of the nose a little bifid: ears broad, short, and rounded: in each jaw two canine teeth: no cutting teeth: tail very long, inclosed in the membrane, which is of a triangular form: the wings thin, naked, and dusky: bones of the hind legs very slender.

Head, body, and upper part of the membrane inclosing the tail, covered with very long hair of a bright tawny color, palest on the head, beginning of the back, and the belly: at the base of each wing is a white spot.

Length from nose to tail two inches and a half; tail, one inch eight-tenths: extent of the wings, ten inches and a half.

Inhabits the province of *New York*; and discovered by *Dr. Forster** in *New Zealand*, in the *South Seas*.

83. LONG-HAIRED.

Mr. Clayton, in *Ph. Trans. Abridg.* iii. 594.

BAT. With long straggling hairs, and great ears.
The above is all the account we have of this species; which is said to be an inhabitant of *Virginia*.

Mr. *Lawson* says, that the common Bat is found in *Carolina* †.

* *Observations*, &c. 189.† *Hist. Carolina*. 125.

Hist. Quad. N° 407.—Great Bat, *Br. Zool.* i. N° 38.

84. NOCTULE

BAT. With the nose slightly bilobated: ears small and rounded: on the chin a small wart: body of a cinereous red.

Extent of wings fifteen inches: body between two and three in length: tail, one inch seven-tenths.

Brought from *Hudson's Bay* in spirits. I saw it only in the bottle; but it appeared to be this species.



A. COMMON BAT, *Hist. Quad.* N° 411.—*Br. Zool.* i. N° 41.—*Lev. Mus.*

THIS species is found in *Iceland*, as I was informed by the late Mr. *Fleischer*, which is the most northernly residence of this genus. In *Asia* I can trace them no farther eastward than about the river *Argun*, beyond lake *Baikal*.

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CLASS

NOTICE AND COMMON PAT.

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CLASS

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